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DEPARTMENT OF THE INTERIOR AND RELATED AGENCIES APPROPRIATIONS FOR 1997

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BEFORE A

SUBCOMMITTEE OF THE
COMMITTEE ON APPROPRIATIONS
HOUSE OF REPRESENTATIVES

ONE HUNDRED FOURTH CONGRESS

SECOND SESSION

SUBCOMMITTEE ON THE DEPARTMENT OF THE INTERIOR AND RELATED AGENCIES

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NOTE: Under Committee Rules, Mr. Livingston, as Chairman of the Full Committee, and Mr. Obey, as Ranking Minority Member of the Full Committee, are authorized to sit as Members of all Subcommittees.

DEBORAH WEATHERLY, LORETTA BEAUMONT, JOEL KAPLAN, and CHRISTOPHER TOPIK,
Staff Assistants

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DEPARTMENT OF THE INTERIOR AND RELATED AGENCIES APPROPRIATIONS FOR 1997

HEARINGS

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DEPARTMENT OF THE INTERIOR AND RELATED AGENCIES APPROPRIATIONS FOR 1997

THURSDAY, MARCH 7, 1996.

TESTIMONY OF MEMBERS OF CONGRESS AND OTHER INTERESTED INDIVIDUALS AND ORGANIZATIONS

DOE

WITNESS

DIANE DE VAUL, DIRECTOR OF POLICY, NORTHEAST MIDWEST INSTITUTE

Mr. REGULA [presiding]. Good morning. Let's start the hearing for the Interior Subcommittee. I appreciate the fact that you are all here to testify. I reluctantly have to say that we have five minutes per person, and I will be tapping the gavel if it goes beyond that because otherwise we're not going to stay on schedule, and we've got a lot of witnesses to hear from. So I hope you will respect the time limitations.

Our first witness today is with the Northeast Midwest Institute, Diane De Vaul.

And I will say that all of your testimony will be made a part of the record, and certainly the staff will examine it carefully, and so, if you can summarize, it will be very helpful. Thank you for coming.

Ms. DE VAUL. Thank you. I'll try and do that.

Thank you, Mr. Chairman, for the opportunity to testify today on behalf of the Northeast Midwest Institute. Realizing you have difficult choices to make in the days ahead, I appreciate the opportunity to explain the importance of three areas of DOE's budget that are particularly important to the region: OIT's industrial programs, the energy information administration, and funding for State energy offices which includes both the Weatherization Assistance Program and the State Energy Conservation Program.

Our 18 States, as you know, are energy-consuming States dependent on other regions of the country and other countries for the energy that drives their economies. Characterized often by high energy prices, older buildings, and older manufacturing plants, energy efficiency remains our most important energy resource. The future of this country and our region depends on a healthy manufacturing base. Industry uses the most energy of any sector of the economy and generates the most waste. Non-productive expenditures on industrial pollution abatement and control are expected to exceed $200 billion by the year 2000, hindering our industries competing in highly competitive markets. OIT's programs, by spurring energy efficiency investment and research and development, provide a way for industry to become more efficient, clean and competitive. In five minutes, I can only provide a couple of brief examples.

The Crane Valve Company in Washington, Iowa cut its foundry's energy use per unit of output by 29 percent. It eliminated much of its waste stream, and this increased competitiveness resulted in expanded production of 225 percent. Instead of closing, the Crane Valve Company ended up hiring an additional 30 people.

Ohio has more foundries than any other State, and OIT is working with 30 of those foundries to improve their energy efficiency and cost competitiveness.

Similarly, OIT's Industries of the Future is far from corporate welfare. Rather, it embodies the best of Federal Government investing in the manufacturing future of this country. According to Allan Rooks, a conservative editor of the pulp and paper industry's trade magazine, after years of criticizing government, Rooks praises OIT's Industries of the Future program because it encouraged the paper industry to develop its own blueprint for research and helps to fund research and technologies that the industry has pointed out that it needs to improve its future competitiveness.

Equally important, pulp and paper industry spokesmen have been able to use the research partnership to negotiate with EPA to substantially reduce compliance cost under the final cluster rule reducing them from $11.5 billion down to $3 or $4 billion.

And, finally, the Congressional Manufacturing Task Force, with 84 Members in the House, has placed OIT's industrial energy efficiency programs high on its agenda to preserve.

Mr. REGULA. There's a lot of matching money in that, isn't there?

Ms. DE VAUL. There is, very much so. In fact, most of their funding is more or less seed money, and it does a fine job of partnering.

I want to turn briefly to the Energy Information Administration——

Mr. REGULA. You have about one minute.

Ms. DE VAUL. Oh, I only have one minute? All right.

Mr. REGULA. It moves quickly.

Ms. DE VAUL. Okay, it does.

This country spends $490 billion in energy every year. EIA's budget of $72 million represents a mere one one hundredth of one percent of that amount of money, yet it is crucial for several reasons.

It allows the energy market to work during supply disruptions serving to quell panic speculation and buying. It provides State level information on price supplying consumption patterns necessary to respond in a timely fashion during an emergency. States cannot replicate the data provided by EIA, and have no ability to collect data outside of State borders.

And, finally, and probably more importantly from our perspective, or at least as important, it provides information used by Members of Congress to weigh the impact of legislative initiatives from as diverse areas as oil import fees, various energy taxes, to respond during supply disruptions and to evaluate heating oil and propane markets.

Mr. Chairman, this country has gone to war in order to secure its oil, the oil that it needs to fuel its economy. We can ill afford to do away with important energy information that allows those markets to work efficiently.

Mr. REGULA. Thank you.

Ms. DE VAUL. Thank you, very much.

[The statement of Ms. De Vaul follows:]

Mr. Chairman, Subcommittee Members, I appreciate the opportunity to testify before the Subcommittee on Interior Appropriations on behalf of the Northeast-Midwest Institute. Three areas of the U.S. Department of Energy funding represent particularly important resources for the states that make up the Northeast-Midwest region:

- the Office of Industrial Technologies funding;
- the Energy Information Administration; and
- the State Energy Conservation Program and the Weatherization Assistance Program.

OIT's Industrial Energy Efficiency Programs: Helping Industry Stay Efficient, Clean, Competitive

By any standards industry is vitally important to the national economy. Industry accounts for about 25 percent of the gross national product, 75 percent of exports, and provides jobs for over 25 million workers. Industry also consumes more energy than any other sector of the economy, 37 percent, with annual expenditures of $100 billion. Similarly industry generates the most waste and spends over $50 billion on pollution control measures annually. Without significant improvements in reducing waste, industries' nonproductive expenditures on pollution abatement and control will exceed $200 billion by 2000.

The good news is that investments in energy efficiency in industrial technologies can deliver not only energy savings, but pollution prevention and productivity gains. Programs of the Office of Industrial Technologies in partnership with industry, government and nongovernmental organizations develop and deploy advanced energy efficiency, renewable energy, and pollution-prevention technologies.

Mr. Chairman, these programs are particularly important in the Northeast-Midwest region, home to many older manufacturing plants. As you are aware, the NICE^3 grant enabled PPG Industries to develop a system to recover and reuse paint waste water. The system reduced both energy use and waste by more than 90 percent with an investment payback of less than a year. Equally if not more importantly, it helped PPG Industries to regain a competitive edge that allows the plant to remain a productive employer.

Mr. Chairman, we are only beginning to understand the interrelationship between energy efficiency, waste reduction, and productivity. The Crane Valve Company in Washington, Iowa, the largest employer in that small town was struggling to survive in a fiercely competitive market, not only from foreign competitors, but also among the corporate branch plants. With assistance from the Metal Casting Institute, funded in part by DOE, the foundry operation at Crane reduced energy use per unit of output by 29 percent, eliminated much of its waste stream, and increased production 225 percent. As a result, the company has hired an additional 30 employees.

Ohio has more foundries than any other state according to the American Foundryman's Society. OIT currently is partnering with more than 30 Ohio foundries and other metal casting related companies on various projects, including establishing a Metal Casting Competitiveness Research Program, improving casting dimensional control and fatigue life prediction, clean casting, and the development of lead-free alloys.

Mr. Chairman, OIT's programs deliver results. More than 47 completed and tracked OIT projects saved approximately 613.5 trillion BTU, a production cost savings of over $1.57 billion, (total value of all energy saved by technologies developed with OIT support minus the cost to industry of using the technologies, including capital costs, O&M, and any non-energy production costs). Similarly the pollution reductions resulting from OIT programs are equally impressive. The 45.5 million tons of carbon equivalent equal reductions that could be achieved if 4.8 million automobiles were taken off the roads for one year.

OIT's "Industries of the Future" is far from corporate welfare. Rather it embodies the best of federal government--investing in the manufacturing future of this country. Let me give you an example. According to Alan Rooks, Editor in Chief of PIA Magazine (a publication of the pulp and paper industry), "I am not a big fan of government. Over the years I've been critical of many regulatory, legislative, and judicial actions, particularly as they affect the pulp and paper industry..." Rooks goes on to praise OIT's program, explaining that it is unique because DOE encouraged the paper industry to develop its own blueprint for the research. DOE provides seed money for precompetitive research that individual companies would be reluctant to do on their own, which stimulates future technological and economic growth. The investment is modest, with $11.5 million of the $42.7 million to fund research for the Industries of the Future program in 1996, going to the paper industry.

Moreover, DOE helped the paper industry get its act together. Member companies of the American Forest and Paper Association produced Agenda 2020, a technology vision that sets out the research steps needed to improve the industry's environmental performance, energy efficiency, and total productivity. Jo Cooper, Vice president of regulatory affairs for the American Forest and Paper Association explained that she was negotiating with EPA to substantially reduce compliance costs under the final Cluster Rule for the industry from $11.5 billion down to $3 or $4 billion based on their research agenda with DOE.

Mr. Chairman, we need the powerful economic engine of manufacturing to run efficiently and cleanly in order to have a healthy economy. For too long, we have focused a disproportionate share of energy efficiency funding on buildings and transportation. We now understand how important industry is and how energy efficiency can reduce environmental impacts and costs while streamlining production. We have barely begun to explore industrial energy efficiency potential. The Japanese and European governments invest billions of dollars, helping their industry deploy the latest technologies and gain the competitive edge in world markets. We have no similar programs. Our industry is far too important to cut back on the small, innovative6, and extremely effective programs now run by OIT.

The Congressional Manufacturing Task Force with 84 members placed the continuation of

OIT's industrial energy efficiency programs high on its agenda. We know you understand the importance of these programs to our region's economy. We look to your leadership and vision in protecting OIT's funding, our investment in the economy's future.

The Energy Information Administration: Providing Information So the Market Can Work

The second area of funding in the U.S. Department of Energy's budget that is crucial for our states, but also for the nation, is the funding for the Energy Information Administration. Mr. Chairman, it is always easy to cut information gathering programs. There are no constituent groups who will rally to protect data collection. There is often no immediate hue and cry when information is not available. Until it is needed.

This country has been drawn into war more than once in order to secure the flow of oil on which its economy depends. Annually the economy requires in excess of $490 billion of energy in order to function. Surely we can afford to provide EIA with the $72 million necessary to provide the information Congress, state government, the public, and the market need in order to make informed energy decisions, whether related to supply, demand, or price. Mr. Chairman, that represents slightly more than 1/100 of one percent of the national energy bill.

Congress has pared EIA's budget to the bone. Further cuts mean the loss of information and the capability to analyze complex and rapidly evolving energy markets. If more cuts are made in EIA's budget state level data on product price, supply, and consumption will be lost. This data is collected only by the federal government, it cannot be replicated by states since their authority to collect data ends at their state's borders. The loss of this data would be particularly threatening in the Northeast-Midwest region, which is for the most part energy dependent and at the end of the pipeline, furthest from the well head.

Without the state level data provided by EIA states will have little information with which to respond to the next supply disruption and price run up. Oil markets are particularly volatile. The futures market remains extremely sensitive to panic buying, which can quickly occur in the absence of information on inventories, stock levels, supply trends. Many of the nation's energy offices, already reduced by substantial budget cuts, depend on EIA in order to assess and respond to price hikes or supply shortages. Should EIA discontinue its state level data, the nation would lose the information it needs to respond quickly and responsibly to energy emergencies, most of which occur locally or regionally.

When President Reagan issued an Executive order to decontrol oil prices, he directed the Secretary of Energy to get rid of all unnecessary reporting burden on the oil industry. The administrator of EIA at that time determined that there was no statutory requirement that EIA collect state level data. Anticipating the possible loss of oil product price, volume, and consumption data former Congressman Railsback (R-IL) introduced language requiring EIA to continue to collect the data, arguing that without adequate information, elected officials would inevitably make hasty and ill-informed decisions during an energy crisis. Since that time, EIA's state level data has calmed oil product markets many times, preventing even greater volatility in a market that experiences rapid price swings. Mr. Chairman, as you know energy is essential for survival. Comparable, timely data helps the market work well. We can ill afford to lose it.

Furthermore, members of the Northeast-Midwest Congressional and Senate Coalitions have used state level information provided by EIA

- to evaluate the impact of proposed legislation on oil import fees;
- to analyze the impact of a gasoline tax increase, a carbon tax, a Btu tax;
- to weigh the need for supplemental LIHEAP appropriations;
- to respond to escalating heating oil and propane prices during supply disruptions; and
- to evaluate the need and allocate funding for LIHEAP and the Weatherization Assistance Program.

State Energy Grant Programs: Innovation and Efficiency

Finally, Mr. Chairman, members of the subcommittee, I urge you to provide adequate funding to the State Energy Offices for Weatherization Assistance and State Energy Conservation Programs. The Senate just appropriated $1 billion in advanced funding for the Low-Income Energy Assistance Program for fiscal 1997, recognizing the essential nature of the program for low and fix-income recipients. Yet it is the Weatherization Assistance Program that reduces the need for LIHEAP and seeks to improve the efficiency of the building stock itself. We particularly need the Weatherization Program in our cold states with older housing stock and higher prices.

We also need to fund our state energy offices, providing them with seed money and flexibility to creatively address the most compelling energy efficiency opportunities in our communities. The world's population is expected to double early in the next century. We must find more efficient ways to use the tremendous amount of energy we now consume. Investments in energy efficiency remain our most cost-effective energy resource. Some of the most innovative energy efficiency programs have been designed by state energy offices to meet the needs of their communities. They represent successful federal programs and should be continued and supported.

Thank you very much for the opportunity to testify today.

THURSDAY, MARCH 7, 1996.

NEA

WITNESS

ROBERT MAYER, PRESIDENT, CLEVELAND INSTITUTE OF ART

Mr. REGULA. Next, the Association of Independent Colleges of Art and Design, Mr. Robert Mayer. Thank you for coming.

Mr. MAYER. Good morning. Mr. Chairman, thank you for permitting us to testify on behalf of the appropriation for the National Endowment for the Arts.

I am Robert Mayer, President of the Cleveland Institute of Art, a college of art and design that was founded in 1882. I am here representing the association——

Mr. REGULA. That is a private institute?

Mr. MAYER. Yes, non-profit.

I am here representing the Association of Independent Colleges of Art and Design, which are 32 institutions like the Cleveland Institute of Art, spread throughout the country. I also come as an observer of the National Endowment for the Arts for many years having served as the executive director of the New York State Council on the Arts, as a panelist for the National Endowment for the Arts, and as a director of a museum and now as director of a college of art and design.

The AICAD members do not benefit much from the National Endowment for the Arts. Only about a quarter of our constituents receive small grants from the National Endowment for the Arts each year mostly for exhibitions and special lecture series. We ourselves have only received one $7,500 grant from the Endowment in the last five years. This is a very modest amount in our $10 to $15 million budget on an average of all the schools. So, we're not here to testify about the National Endowment for the Arts for our survival at all, but really of a higher principle and that is the issue of advancing the practice and recognition of art and design. We think that there is a need for a national agency, and we do think it has a leading role in the cultural life of the United States.

The Endowment over its 30-year history has done a lot, spreading art from urban ghettos to small towns, as well as maintaining the highest level in our major museums, like the Cleveland Museum of Art and other are symphonies like the Cleveland Orchestra. The NEA has made errors in judgment over the 30-year history, we are all very aware of that, but who doesn't, in its operations, whether that is a college or a charity or a legislative body? We think that the NEA is making efforts to respond to the criticisms from the Congress as to its problems.

The NEA, as a government agency, serves as one leg of the three-legged stool that supports cultural activities in the United States. And that's the individuals, corporations, and the government. Without one of those legs, the whole thing can collapse. There is no balance. It needs all of those agencies, and the government gives it a somewhat unbiased viewpoint compared to the whims of individuals or corporate bottom lines as to why they are giving money to the arts. We think the Endowment also leverages considerable private funds, particularly through its challenge grant program, and it has increased art throughout the country.

We're concerned mostly about the trends in the art world today, and that is in the lessening of art in the schools. We're concerned about art education, that, in many elementary schools across the country there are no art educators any more, no teachers in those schools. We think that this is disastrous. The Endowment has done a lot in this area. It has a good track record, and we think it can increase and reinvigorate the art education area if it is given a chance.

We also are deeply concerned about design education in the schools because there is none being done in this United States where it is happening in other countries in Europe and in Japan. And that does have an impact on——

Mr. REGULA. On design like of furniture, automobiles——

Mr. MAYER. Anything, any product we have here is designed. This microphone is designed. And that makes our economy competitive in the international world.

We think that's important that design education be encouraged at the K through 12 level. We believe the NEA is the one that can do that and have an impetus.

We understand very much, Mr. Chairman, that there is a very restrictive government budget this year, and we do urge to possibly give a modest increase to the National Endowment of the Arts.

Mr. REGULA. One more question, institutional grants versus individual, it is my preception that most of the problems with the NEA have been with the individual grants. In light of that would you favor, restricting it to institutional grants?

Mr. MAYER. Well, the troubles with the National Endowment of the Arts have not been individual grants but have been through institutions.

Mr. REGULA. That gave individual grants?

Mr. MAYER. That's right, that gave individual grants. So, I think that you have to walk carefully on whether you're just cutting off the whole creativity of the future by cutting off all individual grants or whether you support them through institutions.

Mr. REGULA. Thank you very much.

Mr. MAYER. Thank you very much.

[The statement of Mr. Mayer follows:]

ROBERT A. MAYER
PRESIDENT
CLEVELAND INSTITUTE OF ART

TESTIMONY BEFORE THE SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES
MARCH 7, 1996

Mr. Chairman and members of the Subcommittee, thank you for the opportunity to address you today about the appropriation for the National Endowment for the Arts. My name is Robert Mayer. I am president of the Cleveland Institute of Art, a college of art and design in Cleveland, Ohio, that was founded in 1882. Today I am representing the Association of Independent Colleges of Art and Design (AICAD), which is a consortium of the leading art and design colleges around the country. Our 32 members are degree-granting, accredited, free standing colleges educating over 50,000 students each year.

My observations today come after having served earlier in my career as Executive Director of the New York State Council on the Arts, as a panelist for the National Endowment for the Arts and a consultant to many state and local art agencies, as the Director of a major museum, and now as president of an art and design college.

Only about one quarter of AICAD's members receive grants from the NEA each year, usually as support for exhibitions and lecture series. My own institution has received only one $7,500 grant in the last five years for such a purpose. This support represents a rather modest portion of the average art school's $10 to $15 million annual budget.

AICAD's primary motivation in addressing you today is obviously not self interest or financial survival. Rather, we are motivated by a higher principle. We seek to advance the practice and recognition of art and design in this country, which we believe necessitates a role for the Federal government through a lead agency like the NEA.

The members of AICAD believe that the NEA is a worthy agency that plays a leadership and catalytic role in generating support for the arts in our country. Throughout its history the NEA has stimulated communities to expand the cultural horizons of their citizens - from small towns to urban ghettos. And, while doing that, it has helped uphold the highest artistic standards of our country's leading presenters of art - its major museums, symphonies, etc.

The NEA can be faulted for a few erroneous judgments during its thirty year history. But what human endeavor, whether by a corporation, college, legislative body or charity has not done the same. But the good achieved by even flawed individuals or organizations must outweigh the occasional error or all the good in our society would be lost. We believe that the NEA has been making efforts to respond to Congressional criticisms that have been made in the past few years.

Having served as the head of a state arts agency for 3 years and on the staffs of private foundations for 14 years before, I can say without question that the NEA's process is as good and fair as any other grant making body I know. Government funding serves as one leg of the three legged stool of art support - government, corporations and private individuals. Without any one, the other two cannot sustain a balanced menu of arts opportunities for the citizens of our country. The whims of individuals, the bottom-line perspectives of corporations necessitate the unbiased appraisal of government for balance to happen. In fact, with the attacks that have damaged the NEA, we are already beginning to see a pulling back in support of the arts by private sources.

The processes of the NEA, through its matching requirements, have leveraged millions of dollars in private support for arts groups. Its challenge grant program has stimulated private funding of large amounts of money, reaching all throughout the country. The Cleveland Institute of Art was the beneficiary of a $500,000 NEA challenge grant at a crucial point in its expansion in the 1980s. I can personally attest to the fact that NEA grant activity validates an organization's efforts in the eyes of others.

This success has dramatically increased the level of arts events throughout the United States. I grew up in a small town in New Jersey, devoid of public arts activities. When I traveled throughout New York State for the Arts Council, I saw in towns like the one in which I was reared literally hundreds of growing arts opportunities that owed their success to support from the state arts council and the NEA.

As knowledgeable citizens we are concerned that, without sufficient funding for the NEA, the arts will atrophy to the minimum level they were at the time when I was young.

Trends in our society cause this concern. There has been a steady decline in the presence of art education in our schools. In my small hometown, even 50 years ago, we had a circuit-riding visual arts teacher and a music teacher in our elementary schools. Today, due to budget cuts at the state and local level, a large proportion of elementary schools no longer have an art teacher of any kind. Indeed, a number of middle and high schools are facing the same declines. We are raising a generation with less exposure to the arts than at any time since World War II. Ultimately, as a generation of school children are produced with virtually no experience in the arts, except for that which can be eked out of the limited time overworked parents can find, there will undoubtedly be shrinking audiences and support for the finest cultural experiences being offered by museums and symphonies.

We believe that the NEA can serve as a catalyst to reinvigorate arts education in our public schools. It has a proven track record in this area. However, it needs to renew its efforts and provide visible leadership to assure that our society does not become culturally limited and, therefore, diminished.

We also believe that the NEA can expand on its educational role by attending to the need for design education in our schools. Art and design are inextricably linked. Everything we see or use has been designed by an artist. Our motivation to buy it or use it depends considerably on its design esthetics. Design is what makes products competitive in the market place. It is critical that American manufacturers remain on the leading edge of design to increase our competitiveness in the global economy.

There is virtually no design education taking place up through the high school level in our schools. In Japan, Scandinavia and many other countries in Europe, young people acquire an appreciation for the benefits of good design early in their lives. In our country no such impetus exists. So, here, too, we believe the NEA could serve as a vocal leader and stimulus for increasing the use of and appreciation for design in our country.

The members of AICAD believe that art education and design education are being neglected by this country and that our society and culture will ultimately suffer because of these oversights. The 30 year history of the NEA shows that when it takes up a valid cause and champions it across the country, others listen and things change. We believe the NEA can help correct the problems and lapses noted above, and that it has a responsibility to do so.

Mr. Chairman, we know resources are very tight right now throughout the federal budget. But we would argue for a modest increase in support for the NEA and strongly suggest that it be directed towards art and design education. This would help stem the decline in arts education in our schools and start on the path of producing a citizenry that is better and more fully educated.

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

CHARLES PARTHUM, PRESIDENT, AMERICAN SOCIETY OF CIVIL ENGINEERS

Mr. REGULA. Next, the American Society of Civil Engineers, Charles Parthum, the president. Thank you for coming.

Mr. PARTHUM. Thank you, Mr. Chairman and committee members.

Good morning. I'm Charles Parthum, president of the American Society of Civil Engineers. I represent 120,000 members, and speaking also on behalf of about 800,000 engineers from other associations.

Last year when I appeared before this panel at this time in March, we were concerned that there was a proposal to terminate the United States Geological Survey, but through your efforts, I think that everybody has been assured and understands that the United States Geological Survey, surveying and mapping and water gathering and analysis, and earthquake hazard reduction programs are used by all engineers to improve the quality of the constructed facilities for the benefit of mankind.

Testimony this year is a little bit more difficult because we don't know what the numbers are yet for 1996, and we don't know what the numbers are even proposed for 1997.

Mr. REGULA. We don't either. [Laughter.]

Mr. PARTHUM. But I suggest that you maybe use the numbers that were proposed for last year.

The need for complete and uninterrupted basic water data is essential. We can't miss a year or two. If we had missed the great floods in California in 1993, in the Midwest in 1995, the California floods, and even a couple of months ago, all the floods in Oregon, we wouldn't have the information on elevations, volumes and velocities. And if we're going to have to prepare flood control measures and bridges and other systems along the waterway, we've got to know velocities especially because we don't want things to be undermined, especially bridges.

We also would emphasize that State funds should be matched by the Federal Government because there a lot of interstate water systems that individual States cannot handle. Collection activities are essential. They are the logical responsibility of the Federal Government for everybody in the United States, and it is the only cost effective way to get this done. If it were split up among a number of agencies or States it just is not cost effective.

In closing, Mr. Chairman, we understand that the National Biological Survey and the Bureau of Mines are now proposed to reside within a USGS.

Mr. REGULA. Correct.

Mr. PARTHUM. That's all and good, but I hope it doesn't undermine USGS's neutrality and reliability and that USGS not be short changed because the other associations are to be coming into the USGS.

With that, I am glad to answer any questions.

Mr. REGULA. You've been very pleased with USGS as a resource agency for the civil engineers, is that correct?

Mr. PARTHUM. Yes, sir. I use that myself personally many, many times.

Mr. REGULA. I recently visited their operation on earthquakes in California, and it is superb the way they coordinated with California—I've forgotten the school, it's in the Los Angeles area——

Mr. PARTHUM. Cal Tech.

Mr. REGULA. Cal Tech, yes. Cal Tech and the State and the private sector, they integrated it. Now, is your experience that this is a pattern? Are you familiar with the way USGS operates across the board?

Mr. PARTHUM. USGS is looked at as the data collection agency, even by the National Weather Bureau, to predict the floods along the rivers days in advance. It's all very important. We're not asking you for grants, we're just asking for the USGS to continue.

Mr. REGULA. All right. I appreciate your testimony, and I might say that there is strong support for USGS on the committee.

Mr. PARTHUM. Thank you, sir.

Mr. REGULA. Thank you.

[The statement of Mr. Parthum follows:]

Good morning, Mr. Chairman and members of the Committee. I am Charles A. Parthum, President of the American Society of Civil Engineers.

On behalf of the 120,000 members of The American Society of Civil Engineers (ASCE) I am here today to speak to the vital importance of the U.S. Geological Survey's (USGS) water data collection and analysis activities. ASCE's position is endorsed by over 800,000 engineers represented by the Engineers' Public Policy Council of the American Association of Engineering Societies and the National Society of Professional Engineers.

What a difference a year makes. Last year at this time, the USGS was an entity in danger of apparent termination. The outcry to this threat or perceived threat prompted many individuals and organizations to tell the story of USGS' importance to our daily lives. As civil engineers, we know first hand the importance of the Survey's surveying and mapping activities and water data gathering and analysis programs. Not to mention their key role in the Earthquake Hazards Reduction Program. During the past year, the Congress and the public were able to learn more about the importance and effectiveness of this agency. This panel is to be commended for listening and then acting accordingly on the fate of the Survey. Not to diminish the pressure to cut spending government-wide, the USGS in the end, has become the new home for the previous National Biological Survey and the remnants of the old Bureau of Mines.

Our testimony is made difficult this year by the absence of an enacted FY 1996 Appropriations bill for the Department of the Interior (H.R. 1977), as well as the lack of a detailed FY 1997 budget request from the Administration.

In the absence of solid numbers, I will give the committee a FY 1997 benchmark to aim for with respect to the Water Resources Investigations function: $125.9 in the Federal program and $64.5 million in the Federal-State Cooperative Program. As I'm sure you know, both figures were requested by the Administration in FY 1996. While this issue remains unresolved, Congress is recommending, unwisely we believe, to cut the Federal program by approximately $1.5 million and the Federal-State Cooperative Program by $2.3 million, a cut that, if approved, will be matched by the states. Increases in the Cooperative and Federal Programs will help to offset some of the ill-advised Congressional cuts that have occurred since the early 1980s.

Further cuts in these programs would limit the nation's future ability to manage its precious water resources.

The cost of collecting water data is not great, but the impact of such data is immense and far-reaching. These data are critical to a wide range of activities, including: reservoir operation; water quality and supply studies; water law court decisions; wastewater treatment discharges into streams; drainage structures for highways, bridges and culverts; flood insurance and management studies; detention pond studies for urban runoff control; planning and design of hydroelectric projects; water basin planning and investigation; forensic analysis; environmental impact analysis; and ice forecasting, jam and control studies.

The need for complete and uninterrupted basic water data, year after year, is essential to proper engineering design. How can engineers devise optimum responses, and design the most cost-effective facilities, if they have incomplete and inadequate hydrologic data? The federal cost of basic water data collection and analysis pales when compared to the cost of facilities which will be based on inadequate data, as well as to the potential loss of life and property that can occur if errors in design result from use of a faulty data base. The unusual weather patterns experienced by much of the nation in recent years underscore the importance of maintaining uninterrupted records. We simply must have perpetually accurate data to engineer projects and allocate water. Capturing data from extreme events, like the Great Flood of 1993 in the Midwest, or the 1995 floods in California, is vital to engineers and others.

Moreover, the National Weather Service (NWS) uses data from 3,000 USGS streamflow stations to forecast river stages and flow conditions on major rivers and smaller streams in urban areas. The USGS coordinates the collection of streamflow and related data with the 13 NWS River Forecast Offices and ensures the availability of data at all times, but particularly during flood emergencies.

Unfortunately the total number of continuous streamflow recording stations has gradually fallen since 1980.

The U.S. Geological Survey has used cost sharing arrangements with non-federal agencies to stretch further the federal funds appropriated for water resources data collection. Whereas we believe complete federal funding is the best way to ensure continuity of data collection over multi-decade time periods, cost sharing is a feasible and attractive alternative to reduced data collection. It should be noted, however, that in recent years, the states have been willing to spend considerably more than the federal government in the Cooperative Program for water data collection and analysis. This disturbing trend appears to be accelerating. In FY 1993 $20 million in state offerings went unmatched by the federal government. In FY 1994 the gap jumped to $27.5 million, and in FY 1995 the gap was $28.6 million. It is likely that unfunded federal mandates related to the Safe Drinking Water and Clean Water Acts have fueled states' water data needs.

We respectfully recommend that the federal government be a fully cooperating partner in the Cooperative Program by matching the states' offerings every year. The federal match slipped to 68% of the states' offerings in FY 1995, down from 91% in FY 1988. We, of course, realize that in the current budget climate it may be unrealistic to expect the federal government to fully match the states' offerings in the Cooperative Program. However, the point should be noted that the federal government is failing to honor its end of the deal.

We believe that the USGS basic water quantity data collection activities are:

1) essential, because the value of hydrologic data increases with both the length and continuity of the record;
2) the logical responsibility of the federal government because the states cannot possibly assume the support and leadership role of USGS for interstate water systems; and
3) cost-effective, because coordinated water data collection eliminates overlapping and duplicative efforts.

Data analyses as well as research and development of new predictive techniques can be accomplished by innumerable public or private water-resource agencies, as the need arises, if the long-term basic data exists. If the data is lacking no one, including the USGS, can manufacture it. Accordingly, this activity must be one of USGS' highest priorities.

The efficient annual expenditure of billions of dollars under the Clean Water Act, the Water Resources Development Act and the Safe Drinking Water Act depends on adequate basic water data collection.

In closing Mr. Chairman, let me add that the pending merger of the NBS and Bureau of Mines into the USGS must in no way undermine the traditional policy neutrality and unquestioned reliability of the USGS. I say this not to denigrate the NBS or Bureau of Mines in any way, but to stress the care needed to effectively assimilate these new functions into the USGS.

AMERICAN SOCIETY OF CIVIL ENGINEERS

The American Society of Civil Engineers (ASCE), founded in 1852, is the oldest national engineering society in the United States. Membership, held by more than 120,000 individual professional engineers, is about equally divided among engineers in private practice; engineers working for federal, state or local governments; and those employed in research and academia. The Society's major goals are to develop engineers who will improve technology and apply it to further the objectives of society as a whole, to promote the dedication and technical capability of its members and to advance the profession of civil engineering.

AMERICAN ASSOCIATION OF ENGINEERING SOCIETIES'
ENGINEERS' PUBLIC POLICY COUNCIL

The American Association of Engineering Societies (AAES) is a multi-disciplinary organization dedicated to advancing the knowledge, understanding and the practice of engineering in the public interest. Located in Washington, DC, AAES includes 17 member societies, 8 associate societies and 3 regional societies affecting over 800,000 engineers in industry, government and education.

NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

The National Society of Professional Engineers (NSPE), is a professional society representing over 69,000 engineers of all disciplines nationwide. The members are organized into 52 state and territorial societies and 500 local chapters and work in industry, education, private practice, construction and government.

Mr. Chairman, this concludes my testimony. I would be happy to respond to any questions.

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

DAVID O. WEBB, SENIOR VICE PRESIDENT, GAS RESEARCH INSTITUTE

Mr. REGULA. Gas Research Institute, David Webb. Thank you for coming.

Mr. WEBB. Thank you, Mr. Chairman. GRI appreciates the opportunity to testify before your subcommittee and present our views on gas related research funding, the Department of Energy's fossil energy and energy efficiency budgets. We're recommending in the fossil energy program a total of $112 million, the same level as approved by this subcommittee last year. In energy efficiency, we're also recommending $82 million, which would be consistent with the actions of this committee last year.

GRI's the research management organization for the natural gas industry. We cofund approximately $25 million a year of research with the fossil energy and energy efficiency programs. So changes in the DOE budget or changes in Federal energy policy do have an impact on our program.

We appreciate the need to reduce government spending in these current times. We realize that DOE's budget will not be exempt from cuts, however, we would ask you to consider these factors as you make the cuts. One would be that gas related research in DOE is under funded as a component of national energy policy. Gas provides about 25 percent of the energy that we use in this country, and gas related research programs in DOE are about 10 percent.

Mr. REGULA. Twenty-five percent of the total——

Mr. WEBB. Twenty-five percent of the total energy in this country.

Mr. REGULA. Coal and petroleum the whole works? Gas is 25 percent?

Mr. WEBB. Yes, that's right. Gas is one fourth, yes. And in the DOE budget, about $2 billion total for energy R&D, gas is only about ten percent, so we feel like gas has already been reduced.

We'd proposed a phasing of projects rather than immediate termination so that we can complete the near term projects so that past expenditures that have been invested will at least get the benefits. We'd like a coordinated phase down of projects that are cofunded with industry so that we have time to adjust our priorities in spending. We'd also propose that cofunded projects with industry should be given a preference because you are leveraging Federal dollars which means that we get more bang for the buck.

And, finally, if Congress expects industry to conduct more of the industry R&D as the Federal budgets are reduced, we really do need to find appropriate incentives for industry, particularly the regulated industry such as the gas or electric utilities.

A couple of more points before I finish: the natural gas R&D area, the roles of fossil energy and energy efficiency are closely linked. You only have a market for new energy efficiency products like gas turbines or fuel cells or vehicles if you have an adequate supply. You only have investments in increasing adequate supply if you have an end use product. So, we think it takes a balance between energy efficiency and fossil energy rather than making cuts in one and adding to the other so that they are closely linked and they really work together hand in hand.

We have been working with other organizations to look for ways maybe to encourage more private sector funding for energy R&D. We think that collaborative research efforts like GRI or EFRI are very appropriate. Each one of us put in specific amounts of money to try to get more members to put in more money. We think that an appropriate incentive would be a tax credit that recognized collaborative research. The current tax credit that expired last June did not recognize collaborative research.

In summary, we encourage the members of this subcommittee to work with us and the department to explore ways to define the most important research, how to jointly phase this research down and shift more to the private sector, and we'd ask the committee to support efforts to refine the current research and experiment tax credit to create and incentive for collaborative research.

Mr. Chairman, thank you very much.

Mr. REGULA. Thank you. Question: is the new production of the new resource discovery equaling what we're consuming? Are we maintaining a net down so that natural gas resources——

Mr. WEBB. In the last two or three years, we have seen increased imports from Canada on the order of about three or four percent a year, so Canada now has about ten percent. With that exception, yes. So, part of the increase is coming from increased domestic, parts come from increased imports from Canada. But over the last seven or eight years, domestic production essentially has increased two or three percent a year in response primarily to new technology. Because prices of gas are less than they were, but the demands are going up.

Mr. REGULA. How many years are the identified reserves good for?

Mr. WEBB. Identified reserves are good for about 20 years. Potential reserves, based on USGS data, are good for about 50 years, with technology.

Mr. REGULA. And that doesn't include Canada in that base?

Mr. WEBB. No, no, that's the United States.

Mr. REGULA. They apparently have a huge base.

Mr. WEBB. Yes, sir, I think that they've got—they consume about 3 trillion cubic feet a year internally. I think they have reserves of 100 years.

Mr. REGULA. Are we wasting any gas? I assume that in Prudoe they pump it back in.

Mr. WEBB. Yes, reinject to pressurize reservoirs to get out the oil, yes. We're not flaring gas in this country now. They still do flare some in the Middle East, but that's beginning to also——

Mr. REGULA. Is there any LNG coming in at all?

Mr. WEBB. There is a little bit of LNG that comes in the winter for winter peaking up in the Boston area. But LNG really has a very hard time competing with natural gas at $2.

Mr. REGULA. Okay, thank you. That was very interesting.

Mr. WEBB. Yes, thank you, Mr. Chairman.

[The statement of Mr. Webb follows:]

Statement of David O. Webb
Senior Vice President, Policy and Regulatory Affairs
for the
House Subcommittee on Interior and Related Agencies
March 7, 1996

Gas Research Institute (GRI) appreciates the opportunity to testify before the Interior & Related Agencies Subcommittee to present GRI's views and recommendations for FY 1997 funding of gas research and development (R&D) programs within the Department of Energy's (DOE) Fossil and Energy Efficiency programs. GRI is recommending a gas-related budget in Fossil Energy of $112 million, the same as approved by this Subcommittee for FY 1996. In the Energy Efficiency program, GRI is recommending a total gas-related budget of $82 million, consistent with the Subcommittee's actions last year.

GRI is the RD&D management organization of the natural gas industry. Our mission is to discover, develop, and deploy technologies and information that measurably benefit gas customers and enhance the value of gas energy service. GRI jointly plans and cofunds approximately $25 million with DOE Fossil Energy and Energy Efficiency program offices. Therefore, any change in policy or reduced levels of federal funding for the DOE programs have an impact on GRI and the gas industry's cooperative research program.

In addition to cofunding projects with DOE, GRI's policy is to obtain an industry partner and industry cofunding within three years after project initiation. This is to ensure the products developed enter the marketplace. Since neither GRI nor DOE manufactures or markets the final product, it is essential that a manufacturer or other financial partner be included in the project to facilitate the commercialization of a technology.

ENERGY R&D POLICY

R&D sets the future direction for development and use of our nation's valuable energy resources. Government funds should be used primarily for investments that are expected to yield general public benefits but which are not likely to be undertaken unless government provides all or part of the funds. The future role of the federal government in funding energy R&D is critical as a basis for decision-making by industry as it competes in an ever increasingly competitive world market. Our technical world is becoming increasingly complex and as the cost of R&D (reflecting this complexity) grows, no single company or group of companies can afford the cost and risk associated with the development of new energy sources.

In the natural gas R&D arena, the roles of Fossil Energy and Energy Efficiency are closely linked and cannot be separated by playing one program area against another. The future of products coming out of the Energy Efficiency activities, for example, gas turbines, fuel cells, natural gas vehicles, etc., is dependent on a consistent, reliable, and economic supply of natural gas. On the other hand, the development of natural gas supply technologies depends on a consistent, reliable, and economic end use market. In other words, a balanced gas research program is needed for both the Fossil Energy and Energy Efficiency programs to contribute to the energy future of this nation.

As you review the role of the federal government in energy R&D, I would urge you to recognize the following:

- The need for a reasonable transition period as federal budgets are reduced;
- The need to adhere to a consistent policy across all energy sectors; and
- The need to allocate budgets more in proportion to energy use in the U.S. economy across all energy sectors.

BASIC RESEARCH

The federal government must continue to have the primary role and responsibility for funding and managing fundamental, long-term basic research. Society receives large and continuing benefits from fundamental research. However, in today's competitive environment, individual private companies are market driven and, in nearly all instances, cannot capture the economic rent associated with many benefits derived from basic research. Therefore, government's role as a primary funder of basic long-term research is both appropriate and essential because private industry will not and cannot fund the level of basic research necessary to achieve national goals and objectives.

APPLIED ENERGY R&D

Both government and industry have a joint responsibility to plan, conduct, and fund applied R&D to meet national energy goals. Industry should be brought in early to assist in the planning, financing, and management of the applied research. The partnership of private industry in federally sponsored R&D accomplishes several goals:

- If the federal research is aimed at top industry priorities, industry will provide cofunding. If industry is not willing to support research after three years, government should question its own role in the research, as the research may not address industry priorities.
- Industry will bring rigorous cost\benefit analysis to prioritize R&D.
- Once industry buys into the research and participates financially and managerially, the commercialization path will be shorter because industry must get benefits from the research to survive.
- When the project is ready for commercialization, industry is already on board and has a significant stake in ensuring the technology reaches the marketplace, thus ensuring success from government and industry investments.
- Finally, duplication of research is eliminated.

Congress needs to recognize the role of industry cofunding in applied energy R&D and should give a priority to those DOE gas research programs that are jointly funded with industry.

REDUCTIONS IN FEDERAL R&D

GRI appreciates the need to reduce government spending and knows that DOE R&D will not be exempt from spending cuts. However, there are several factors which are worthy of consideration when determining which projects to cut or eliminate:

- Gas-related research in DOE is underfunded compared with other energy options.
- A phasing out of projects rather than an immediate termination is recommended to give industry and DOE an opportunity to finish projects which are on a near-term completion track.
- A coordinated phase down of projects cofunded with industry would give industry partners time to adjust their own budgets and reorder priorities; without adequate time to adjust, industry cannot fund even all of the highest priority projects which could be terminated by Congress.
- If Congress expects industry to conduct more of the energy R&D for this nation, then some kind of incentive needs to be given, especially to the regulated energy industries, to make increased private sector R&D a reality.

R&E TAX CREDIT

Last summer the research and experimentation (R&E) tax credit expired and is currently under consideration for extension. Those organizations that participate in collaborative research have found this tax credit as previously structured to be a disincentive. While there was no known intention to create this disincentive for collaborative research, over time it has become obvious that one exists. GRI, along with other not-for-profit R&D organizations, has been looking for ways to eliminate this disincentive and create incentives for collaborative research. This is sound policy at a time when shrinking research dollars in both government and private industry are a reality. Collaborative research is more efficient in terms of both dollars and time spent. We think the disincentives can be corrected by extending and modifying the R&E tax credit to:

- Recognize members' research funding contributions to 501(c)(3) collaborative research organizations as qualifying for the tax credit;
- Redefine "qualified research" to encompass the IRS definition of qualified research for a 501(c)(3) organization;
- Allow 100 percent (vs. 65 percent in the expired legislation) of qualified research expenditures for collaborative research; and
- Provide a 20 percent tax credit for company contributions to collaborative research conducted by 501(c)(3) organizations.

RECOMMENDATIONS

GRI encourages the Subcommittee to look closely at all the Fossil Energy and Energy Efficiency program budgets to determine where the greatest impacts can be made. Currently gas-related R&D is underfunded in DOE's overall budget when you consider that natural gas provided over 25 percent of U.S. energy in 1995. Those gas-related projects which are cofunded with industry and near completion should be funded in order to capture the benefits of time and money already invested by both the federal government and private industry.

Critical goals can be reached by continuing through logical conclusion the cofunded programs in natural gas supply, industrial-size gas turbines, fuel cells, natural gas cooling and desiccants, and cofunded industrial efficiency projects. Almost all of these cofunded projects are targeted for completion within the next four years. A gradual phase-down in the number of projects can be accomplished wisely and logically if there is a dialogue between industry and government. We at GRI are willing to work with both Congress and the Department of Energy to accomplish the goals of government and industry.

SUMMARY

We encourage Members of this Subcommittee to explore ways to work with industry to define what research is important; to determine how we can work together to ensure this nation's important R&D is accomplished; to identify ways in which future research can be encouraged; and to support the refinement of the current R&E tax credit to eliminate the disincentives for collaborative research.

GRI thanks the Subcommittee for its invitation to testify.

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

GARY A. STYLES, MANAGER OF SPECIAL PROJECTS, SOUTHERN CO. SERVICES, INC.

Mr. REGULA. Southern Companies Services, Mr. Styles. Thank you for coming.

Mr. STYLES. Thank you, Mr. Chairman, for giving me this opportunity to tell you about the Wilsonville Power Systems Development Facility. I would also like to thank this committee for its previous support for this national research facility.

It is very important that our Nation maintain coal as an option to meet the Nation's long-term energy needs. The purpose of the Wilsonville Power Systems Development Facility is to perform research that will improve coal based electric power generating technologies that are cleaner, that are more efficient—approximately 25 percent more efficient than existing pulverized coal plants—and lower in cost than currently available technologies. The Southern Company and our industrial partners are investing over $30 million into this facility to help keep coal a competitive fuel. Without continued Federal support, however, this facility will not be completed.

Mr. REGULA. Does this one deal with the emissions or with the efficiency in burning or both?

Mr. STYLES. It is both. It is an integrated facility that includes the gasification or combustion of coal, the clean up of the gas that is produced, and then the combustion of that in a combustion turbine or in a fuel cell.

Mr. REGULA. So it's designed to make coal attractive, environmentally as well as cost wise for power production, is that correct?

Mr. STYLES. That is correct. We have to reduce the capital cost of coal fire technologies to compete.

Mr. REGULA. Other than the Federal money, is this financed with money from the utility industry as well as perhaps the coal industry?

Mr. STYLES. Currently, there is not any significant coal money——

Mr. REGULA. Of course the utilities own a lot of coal production for that matter.

Mr. STYLES. Right, but this is coming predominantly from the Southern Company and Foster Wheeler, MW Kellogg, Westinghouse and other industrial——

Mr. REGULA. The Southern Company, is it an electricity producer?

Mr. STYLES. Yes, sir. They are the largest investor owned utility in the Nation.

Mr. REGULA. What's the percentage of their electricity produced from coal?

Mr. STYLES. Approximately 75 percent.

Mr. REGULA. So that's the real mission that they need if they keep that cost down by making coal an efficient fuel of choice.

Mr. STYLES Right, particularly for future power plants.

Mr. REGULA. Right.

Mr. STYLES. The facility, as I mentioned, will include modules for coal gasification, pressurized combustion, hot gas clean up, combustion turbines, and fuel cells. It is an integrated facility that can develop system data as well as individual component data. The construction of two modules is almost complete, and they will start up about the middle of this year. The construction of the remaining modules should be completed in 1997.

Southern Company Services request that this committee support continued construction and operation of the power system development facility by appropriating approximately $25.3 million for this important national facility in the Fiscal Year 1997 budget.

Thank you very much.

Mr. REGULA. This is not the clean coal program; this is more in the combustion mode?

Mr. STYLES. It is a research and development system. It's only about 15 megawatts in size.

Mr. REGULA. How many States do you service?

Mr. STYLES. We serve currently four States in the Southeast.

Mr. REGULA. That's quite a large base.

Mr. STYLES. That's right.

Mr. REGULA. Okay, thank you very much.

[The statement of Mr. Styles follows:]

THE FY 1997 FOSSIL ENERGY RESEARCH AND DEVELOPMENT BUDGET

Testimony of
Gary A. Styles
Manager, Special Projects
Research and Environmental Affairs
Southern Company Services, Inc.
to the
Committee on Appropriations
Subcommittee on Interior and Related Agencies
U.S. House of Representatives
March 7, 1996

Introduction

Mr. Chairman and Members of the Committee

Southern Company Services, Inc., ("SCS") is a subsidiary of The Southern Company. The role of SCS is to provide, at cost, technical and management services to the five operating companies and other affiliates of The Southern Company. SCS is actively involved in many areas of research including technologies that could be used by the affiliated operating companies to produce power more efficiently. In particular, The Southern Company, through SCS and its operating companies, supports and conducts research that will help the nation utilize its coal resources while minimizing the environmental effects of using our nation's most plentiful and valuable resource. As a result, SCS is currently participating in projects in both the Department of Energy's ("DOE") Clean Coal Technology program and the DOE Fossil Energy Research and Development program.

The purpose of this testimony is to request this Subcommittee's continued support for the Power Systems Development Facility ("PSDF") for advanced coal gasification and pressurized combustion research. SCS would also like to express appreciation to this Subcommittee for previous support for advanced fossil energy research. SCS specifically requests a minimum of $25.3 million for the PSDF project in FY'97. This request assumes that the full $24 million that was approved by this committee for FY'96 is available to the project.

The Strategic Importance of Technological Improvements in Electric Power Production

The growth and health of the U.S. economy are strongly linked to the availability of clean, low-cost, and dependable sources of energy. Fostering innovation has been a hallmark of our nation. American industry relies heavily on low-cost electric power and other energy to remain competitive globally.

We in the electric utility industry are currently making dramatic changes and reducing cost to prepare for greater competition in the supply and delivery of electricity. We are also aware of the pressures for government to streamline and re-invent itself to serve Americans in a more cost-effective manner. While lower cost and increased efficiency in government and in the operation of electric utilities are positive developments, it is imperative in the process of reducing short-term costs that long-term issues not be ignored

Funding for the research and development of important technologies, such as DOE's advanced coal-based and advanced turbine power generation programs, are easily lost in such an environment. For example, the time required to develop new coal-based technology for electric power production typically exceeds fifteen years while the expense can far exceed what any one company or a single industry can reasonably afford. Thus, without continued federal investment, advanced coal-based technologies that can provide long-term societal, environmental, and national security benefits may simply go undeveloped and domestic suppliers of these technologies will not be available when new power plants are built in the early 2000's.

SCS believes that it should be the Federal Government's role, **in conjunction** with private industry, to develop energy and environmental policies that protect the environment and increase energy security. The development of these polices should include consideration of the impact such policies will have on our standard of living and quality of life. If America is to continue to grow and compete in a world economy, it is imperative for the Federal Government to continue to support programs that foster the development of new technologies to help achieve these policies.

Coal is the most abundant energy source in the U.S. and provides 55 percent of the electricity generated in the nation. Most of this electricity is produced by pulverized coal ("PC") boilers that are approaching the end of their effective lives and will need to be replaced re-powered within the next 10 to 20 years. In addition, as demand for power increases, new generating units will be required.

Coal will remain a cost effective fuel option for generating electricity from base-loaded power plants if capital cost can be reduced and efficiency increased. Technologies, such as integrated gasification combined cycle systems ("IGCC") or pressurized combustion, offer the potential for both lower capital cost and increased efficiency. Compared to the previous generation PC plants they will be replacing, these technologies produce electricity at lower cost and will reduce emissions of carbon dioxide (CO_2), sulfur dioxide (SO_2), and nitrogen oxides (NO_x). These advanced coal technologies have benefited from DOE supported research and development programs. In order to achieve their full potential, however, coal gasification and circulating pressurized combustion technologies require improved gas cleanup technology called hot gas cleanup systems.

The results of advanced coal-fired research activities go beyond just the electric utility industry -- coal producers, basic industries, engineering and construction firms, and consumers all benefit from the development of new technologies that use coal. The following national benefits can be realized through successful coal research:

- Electric energy prices will be lower because the technologies will help make our nation's most abundant fossil fuel resource more competitive.
- Electric energy prices will be more stable because technologies will provide competition between fossil fuels.
- Environmental emissions, including CO_2, will be reduced due to the higher efficiency of the technologies compared to conventional pulverized coal.
- Electric power companies and their equipment suppliers will have energy efficient, environmentally superior technology to export to high growth foreign markets.
- Other RD&D programs, specifically the Clean Coal Technology program, can apply technology improvements at lower cost and at reduced risk. For example, it is estimated that at least $6 million has been already saved on one Clean Coal Technology project as a direct result of work on the PSDF project.

However, this research, which will benefit the entire nation, not just a few select companies, **cannot and will not be completed without continued federal support.** Continued federal investment in the research and development of coal-based power technologies is necessary or the U.S. may lose the technological advantage necessary to provide economical and dependable electric power which is vital to maintaining America's competitive business position in global markets. This investment will be repaid to the U S economy through new jobs and tax revenue.

Power Systems Development Facility

The Wilsonville PSDF is a joint industry/DOE facility for engineering-scale testing and development of devices to remove particulates and other contaminates from hot gas in high-efficiency coal gasification and pressurized fluidized bed combustion power plants. SCS and our industrial partners are investing over $30 million in the PSDF project. The industrial partners, which represent a major share of the domestic electric power generation manufacturing and construction business, include. M.W. Kellogg, Inc., Foster

Wheeler Corporation, Southern Research Institute, Westinghouse Electric Corporation, Combustion Power Corporation, Industrial Filter & Pump, Inc., and the Electric Power Research Institute. In addition to the Wilsonville, Alabama plant site, components for the facility are being developed at the following locations: Grand Forks, North Dakota (gasifier development), Houston, Texas (gasifier development); Livingston, New Jersey (combustor development), Menlo Park, California (filter fabrication); Cicero, Illinois (filter fabrication); Orlando, Florida (gas turbine burner), and Pittsburgh, Pennsylvania (filter fabrication)

High-temperature, high-pressure gas cleanup must be perfected in order to use new high-performance gas turbines in coal-based power plants. When fully developed, these technologies will 1) improve the efficiency of power generation from coal by over 1,000 Btu/kWh (approximately 25 percent higher efficiency compared to pulverized coal power plants with a corresponding reduction in CO_2 emissions); 2) lower the cost of electricity by over 10 percent; 3) be more acceptable to coal-based utilities than today's coal-gasification combined-cycle designs; and 4) reduce pollutants by over 95 percent.

The PSDF will be the focal point for much of the America's advanced electric power generation technology development in the 1990s and into the twenty-first century. Current plans call for the facility to contain five modules: 1) an advanced pressurized fluidized-bed combustor ("PFBC"), an extremely clean method for burning coal, 2) a transport reactor gas source, a generic type of coal gasifier and pressurized combustor; 3) a hot gas cleanup module to remove to test filters for removing fine particles and other contaminates from coal gases, 4) an advanced burner-gas turbine module; and 5) an advanced fuel cell. At the PSDF, private developers will be able to test innovative electric power systems components -- new combustors, improved cleanup systems, and advanced turbines and fuel cells -- at a central location, saving the time and expense of building separate test facilities. The facility is currently under construction with the gasification side scheduled to begin operation in the middle of this year and the pressurized combustion side scheduled to begin operation by mid-1997.

The Wilsonville PSDF offers several advantages to the utility industry and to the nation by being able to address issues for the near, middle, and long-term management of technology risk:

- A fully integrated facility to demonstration the interaction between the many subsystems
- The testing of hot gas cleanup systems addresses near-term developmental needs, and the schedule of the PSDF is geared towards providing support to Clean Coal Technology ("CCT") projects for advanced power generation as these projects enter the design and operational phase.
- The advanced pressurized combustion process offers the potential of a high efficiency system for the mid-term that may be widely used in repowering applications or as stand-alone plants.
- The integrated gasification/fuel cell concept is a system that has the potential to become the most efficient and environmentally superior coal-based system available over the long-term.

Another important aspect of the technologies being developed at the PSDF is the interaction with technologies being developed in other DOE programs such as advanced turbine and the fuel cell programs. The Wilsonville PSDF will be the only facility in the world where all the components of an advanced coal-fired power plant can be tested in an integrated system. This facility will allow U.S. electric utilities to maintain reasonable domestic energy prices and for U.S. equipment suppliers to gain a technological advantage in electric power production that can help increase competitiveness in foreign electricity markets.

A Broad Range of Technologies

The technology chosen for new or repowering applications will depend on the specific requirements of the utility. Factors to be considered include the following:

1. Integrated Gasification Combined Cycle
    - Removes more than 98 percent of the sulfur.

- Can be used to repower natural gas-fired applications when fuel costs or fuel availability favor coal.
- Will benefit from improvements in natural gas technologies such as combustion turbines and fuel cells.
- Can be used to co-produce chemical products such as methanol and hydrogen.

2. Pressurized Fluidized Bed Combustion

- Excellent environmental performance.
- Compatible with pulverized coal power plant infrastructure, making it well suited for repowering applications.
- Compact modular design reduces construction time and cost.
- Advanced designs include a combustion turbine which can benefit from improvements in combustion turbine technology.
- Potentially, lowest electricity cost of all projected options.

3. Particulate Control Devices

Both coal gasification and pressurized combustion technologies will benefit from the particulate control devices to be tested and developed at the Wilsonville PSDF project. Current coal gasification technology requires that the syngas produced be cooled to about 100°F before removal of sulfur and particulates. However, with in-situ sulfur removal (being tested at the PSDF) and reliable particulate control devices, gas stream cooling requirements will be reduced or eliminated, which will increase efficiency and reduce cost.

Current generation pressurized combustion technology uses specially fabricated, low efficiency, expansion turbines that are designed to withstand the erosive nature of particulate-laden gas. Incorporating a particulate control device to remove virtually all dust will allow conventional gas turbines to be used -- lowering capital cost, increasing efficiency, and reducing the cost of electricity.

Hot particulate control is currently not a commercial technology for high temperature application and a great deal of effort must be expended to fully understand the mechanisms that are causing premature failure. Commercial users of hot particulate control technology will require that the filter systems operate at least 8,000 to 20,000 hours between failure. The best demonstrated performance of particulate control devices in high temperature applications to date is only about 500 hours between failures.

Conclusion

The United States has always been a leader in energy research. Current DOE fossil energy research and development programs in the coal and fossil energy field will assure that a wide range of technology options continue to be available for future needs. We recognize the difficult choices that confront Congress when it examines the near-term effects of research programs on the Federal budget. We believe, however, that supporting advanced coal-based energy research today, in programs like the PSDF, will be a net plus for the economy, the federal government, and the American people over the long run. For the foregoing reasons, SCS requests your continued support for the Power Systems Development Facility by including $25.3 million in funding in the Department of Energy's Fossil Energy Budget. We thank you for the opportunity to appear before you today.

FY97test doc, March 3 1996

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

ERIC L. SIMPKINS, ENERGY RESEARCH CORP.

Mr. REGULA. Our next witness is Energy Research Corporation, Mr. Simpkins. Thank you for coming.

Mr. SIMPKINS. Thank you. Good morning, Mr. Chairman. My name is Eric Simpkins. I am sitting in for Donald Glenn. I direct ERC's corporate business development function. I appreciate your invitation to discuss the progress of ERC's carbonate-based direct fuel cell program.

The program is ranked among the most important of DOE's programs and is actively supported by over 25 utilities that represent over 20 percent of the United States' generational capacity. Despite the uncertainty associated with deregulation of the electric utility industry, the 5-year-old market development program with our utility buyers group remains on track. With these facts as background, I urge the subcommittee to support bringing the ERC carbonate fuel cell account to the contracted amount of $21.2 million for Fiscal Year 1997 to enable market entry in 1999.

The commercial direct fuel cell plant will offer to customers the most efficient, environmentally-benign power source known and sustain America's lead position in fuel cell technologies and as power equipment supplier to the world.

Mr. REGULA. Do you anticipate it will produce the same price per KWH as a coal fired plant?

Mr. SIMPKINS. In time, yes.

Mr. REGULA. That's the goal, I assume.

Mr. SIMPKINS. That's the goal. Our goal is to——

Mr. REGULA. When do you think you would reach that?

Mr. SIMPKINS. Our goal is to produce power for somewhere in the range of $900 to $1,000 per kilowatt fully installed.

Mr. REGULA. So, how does that compare with coal?

Mr. SIMPKINS. Well, coal is—I can't speak for the coal industry, but I suspect it is in that order of magnitude.

Fuel cell power plants are the first totally new generation technology to reach market entry since the turbine was introduced after World War II. In Fiscal Year 1996, you acknowledged the continued importance of this program by appropriating $38 million for the carbonate fuel cells, a 27 percent increase over the budget request.

Mr. REGULA. When do you anticipate that this will go commercial?

Mr. SIMPKINS. 1999.

Mr. REGULA. 1999, that's what I thought.

Mr. SIMPKINS. At this level, the Nation's two carbonate fuel cell developers were able to continue their scope of work essentially as planned. After this year, the ERC program begins a significant phasing down of the DOE support. We believe that the direct fuel cell program is an outstanding example of the type of industry-government partnership advocated by this subcommittee. It represents near completion of the successful long term investment responsive to clean and efficient use of our country's fossil energy resources. The DOE is funding the new technology portion of the program, including development and delivery of the fuel cells. A consortium—a utility led consortium is funding the rest of the program which includes the development and construction of the balance of the plant, the host site, and the two year system test.

Over the program's 16 years, the private sector has contributed over 40 percent of the cost of the direct fuel cell technology, and in the current and last contract, 43 percent of the program cost. This program is right for our country and the world for four reasons: the direct fuel cell power plant has the highest efficiency and least impact to the environment of any power generation technology today or in the foreseeable future.

Mr. REGULA. Question: does this lend itself to, I use the word "miniaturization"—does it lend itself to individual companies, for example, that have fairly high energy consumption having their own plants, using fuel cells?

Mr. SIMPKINS. Yes, it does. One of the key features of the direct fuel cell technology is that it is excellent for distributive power generation down to the fine level. Yes, sir.

Second, the government and the ERC will have concluded a long term cooperative investment in which the private sector will have contributed $200 million led by a small United States business.

Third, deregulation——

Mr. REGULA. Is it the private sector utilities, or is it a wide range of private sector——

Mr. SIMPKINS. All power generators.

Mr. REGULA. How about consumers?

Mr. SIMPKINS. I'm sorry?

Mr. REGULA. Would groups that have an interest in using this as consumers be involved, or is it just power generators at this moment putting the money in?

Mr. SIMPKINS. Power generators and those who would be independent power generators.

Mr. REGULA. Yes, yes. Okay. Sorry to use your time, but just so I understand it.

Mr. SIMPKINS. Third, deregulation puts more emphasis on distributive generation a key feature of the direct fuel cell. In a recent survey, nearly 60 percent of the electric utilities executives said they would choose to stay in electricity distribution when driven to unbundle their operations. Our fuel cell power plants provide one important option for this setting.

And, last, there's a national and an international market window for the direct fuel cell that is dependent on meeting our program milestones and scheduling. Overseas competitors are a threat to the United States' leadership in power generation both abroad and in this country.

In Fiscal Year 1996, Mr. Chairman, the ERC and it's team members performed the task described here a year ago. The two megawatt Santa Clara power demonstration plant has been constructed with testing to begin in six weeks. Last year we showed you a computer generation, a computerized generation of the planned two megawatt power plant generation power plant in Santa Clara. This year I am pleased to be able to present to you a picture of the power plant as it is constructed.

[Photograph.]

This was taken a couple of months ago. The fuel cells have been delivered to the plant and will be placed in these sections here and to the other sides of these pipes here. But the plant is a reality and will start power production to the Santa Clara grid in about six weeks.

Next year, the first commercial fuel cell stack prototype will be constructed. The ERC will have achieved over 150,000 hours in cumulative testing of the carbonate fuel cell far exceeding the hours tested by any other advanced fuel cell technology.

In conclusion, Mr. Chairman, realizing the limited availability of public funds, the ERC program has raised over 40 percent in the private funds for the last R&D cooperative agreement despite the most difficult time for R&D support. The carbonate fuel cell remains a top priority with DOE and hopefully with the Congress. In two years we will enter the market with a fully qualified direct fuel cell power plant. I request that the subcommittee keep the ERC on track by appropriating $21.2 million for the ERC portion of the DOE carbonate fuel cell program.

Mr. REGULA. Thank you.

[The statement of Mr. Glenn follows:]

Statement of
Donald R. Glenn
Energy Research Corporation
Danbury, CT & Washington, DC

SUMMARY

ERC's carbonate-based direct fuel cell (DFC) program continues to be a model for the transition from R&D to commercial viability. While the ultimate conclusion, that of commercial product introduction and sales remains just ahead, the public/private sector cooperative efforts in place are effectively advancing the program to its planned completion. The six-year old market development program with a utility-led buyers group remains strong despite the uncertainty of impacts associated with deregulation. Starting in 1996, these buyers are expected to initiate advanced orders for the first commercial units as called for in our program's commercialization plan and schedule. These orders will be contingent on continuing satisfactory results in completing the remaining R&D tasks as contracted in the DOE-Product Design Improvement (PDI) effort.

For FY 1996, both Houses of Congress continued their strong support for the carbonate program by advancing an additional $8 million in appropriations over the Budget Request. The Fuel Cell Commercialization Group (FCCG), comprised of utility buyers representing over 20% of the U.S. generation capacity, is encouraged by this sign of continued Federal confidence in the DFC program. Their acquisition of early production units by the end of this decade remains viable with the six-year old industry-supplier collaboration and the commercialization of the Direct Fuel Cell. Completion of the current contracted R&D effort is closely coordinated with the on-going market entry program. This integration enhances the success likelihood for this fuel cell in the early years that follow a significant private investment in developmental and production facilities, and implementation of a responsive field servicing capability.

ERC projects that two fully-funded carbonate fuel cell efforts will require the government's portion to approach $40 million. We urge the government to continue its high priority recognition of the carbonate fuel cell program and finish the in-place ERC-DOE cooperative agreement. This agreement calls for $21.2 million for the ERC portion of the DOE Carbonate Fuel Cell account in FY 1997, the program's peak year. A commercially-ready U.S.-developed DFC power plant technology, new manufacturing jobs and market deliveries beginning in late-1999 are the payoffs.

FUNDING JUSTIFICATION

In FY 1996, the Congress appropriated $38 million for carbonate fuel cells. At this level, the two major contractors were able to maintain their respective efforts essentially as planned. For ERC's portion in FY 1997, $21.5 million is required and marks the start of a phasing down of DOE R&D support. Contingent on this funding, ERC is to commit at least as much to upgrading its present manufacturing facility in preparation for early production unit operations

The highlight of the FY 1997 cost-shared DOE program is the construction and subsequent series of system operational tests using the PDI unit in a commercially viable application. This segment of the program is expected to have a high private sector cost share, a further sign that despite the present difficult utility business environment, this technology remains an important generation option for the electric supply industry. This is further evidenced by the continued strong support of our commercialization program plan by the FCCG.

PROGRAM HIGHLIGHTS IN 1995-6

The carbonate-based Direct Fuel Cell (DFC) program consistes of two major efforts- the Santa Clara Demonstration Project (SCDP) and the on-going five-year Product Design Improvement (PDI) initiative.

The Santa Clara Demonstration Project:

In April 1994, ground was broken for the plant's construction; the balance-of-plant (BOP) was completely installed in June 1995. The balance of plant (BOP) was then pre-tested in advance of the Direct Fuel Cell (DFC) stack modules being installed. This conservative approach lowers the risk that a faulty BOP operation causes the new technology stacks to perform below our high expectations. A moderate amount of rework has been required, not unexpected for a first-of-a-kind new technology demonstration. Almost without exception, the BOP has been the source of past fuel cell plant malfunctions. ERC's recognition of the importance in first qualifying the BOP has been a major influence in achieving its present technology leadership position.

Full plant operation is planned to begin in April 1996 and continue for a one-year period. The Santa Clara testing is expected to provide confidence that a proof-of-concept carbonate fuel cell power system can function on a utility site at a scale representative of numerous utility and industrial applications. Moreover, the operation, resulting data and field experience gained, will be input to the ongoing commercial unit design effort (part of the PDI project).

Product Design Improvement (PDI):

This five-year cost-shared program comprises the remaining elements to essentially complete the R&D initiative. The government's role is to fund the research and development of the full-size fuel cell stack and stack test facilities, and the power plant system design and system verification. The private sector has concentrated on funding prototype manufacturing facilities and process equipment. Much credit for the aggressive program achievements is due to the high technical competency and superior management capability provided by DOE's Morgantown team.

Technology Development:

The key objectives of the research and development effort are to complete a full-size stack design, improve fuel cell performance, and improve the endurance of fuel cell components. An important goal toward completing stack design development involves cell area scale-up. Significant design progress has been achieved by developing a low cost bipolar plate - the primary fuel cell component, scaling up the cell area by 50% to 9000 cm^2 , and reducing cell weight by 40%. Progress was made in tackling fuel cell endurance with a four-fold improvement in cathode strength and verification of several cell matrix strengthening approaches previously developed.

A capability to process diesel (DF-2) and jet (JP-8) logistics fuels for the carbonate fuel cell has been developed and tests begun. The high level of contaminants harmful to the fuel cell are removed and the logistic fuel processed to a gaseous form compatible for fuel cell power production. This achievement will allow military planners and energy systems designers to specify high efficiency, non-polluting fuel cell power plants for fixed military bases and maritime platforms as well as for use as a backup fuel in commercial settings.

Product Development:

The collaboration between the utility-led Fuel Cell Commericalization Group (FCCG) and FCE continued to follow the program plan established over five years ago. During the period, FCE delivered the unit's conceptual and preliminary designs that reflected agreement within the target prices set early in this collaboration as a prerequisite for their purchase commitment. In response to DOE and industry guidance and cost reduction studies, ERC revised the baseline direct fuel cell stack capacity for the commercial unit. The resulting plant design is more compact and simpler, both highly advantageous to the marketability of a new technology. Concurrently, a marketing study was initiated to assess potential shifts in customer interest, competitive forces and applications that reflect the likely new deregulated electric supply industry structure.

Commercialization Planning:

During the year, the FCCG and ERC's commercial subsidiary, Fuel Cell Engineering, essentially completed the model contract to be used for ordering early production units. This contract has been derived to minimize the costs of contract negotiations between the supplier (FCE) and the FCCG buyers for what is intended to be a catalog-standard power generator. The present schedule, which is dependent on receiving full funding of the cost-shared five-year DOE-ERC PDI initiative, calls for the first commerical units to be delivered late in CY 1999. During 1996 and 1997, the FCCG buyers are to execute their contracts with FCE, as advanced orders. These orders signify a market's purchase commitment to be used by ERC to raise additional private capital investment to finance the commercial stack production facility and to secure BOP equipment orders from FCE's subcontractors.

Started in I995, ERC and its subsidiaries are seeking and entering various strategic alliances to present to the buying markets a strong and credible domestic and international team of capabilities. Though many of these alliances remain to be consummated, discussions with key subcontractor firms, architect/engineering organizations and power equipment purchasers continue. It is the company's intention to form whatever associations it deems important to assure a successful deployment and lasting future for the first and follow-on products based on DFC stack technology.

In late 1996, ERC's other commercial subsidiary, the Fuel Cell Manufacturing Corporation is to expand and upgrade its Torrington, Connecticut facility using private capital, to prepare to produce DFC stacks and modules for early commericial production units. The improved manufacturing capability is also tied to the DOE-ERC cost-shared cooperative agreement in that the commercial stacks are a scale-up from the SCDP stacks as was described above (see Technology Development). Through this approach, costs to all sponsors are contained as production equipment outlays are ERC's responsibility while the R&D to design and test the new stack configuration is covered by the DOE in their long-standing role in funding technology development. As an aside, ERC entered and has been paying against a royalty agreement with the government since 1991 in recognition of the valued DOE support to this effort.

Perhaps of greatest importance, these fuel cell systems introduce a new industry bringing with their commercial success many new primary manufacturing and supporting jobs. Domestic and international demands for highly efficient, clean and easily sited smaller power generation schemes will assure realization of these jobs and favorably impact U.S. commerce and exports. ERC believes the U.S. has a tenuous three-four year lead in this field with Japan close behind.

FY 1997 PLANNED ACTIVITIES

The SCDP

The unit's operability testing will continue until 4000 hours of continuous generation is reached; one year has been allocated to achieve this important milestone. Following this event in mid-

1997, the SCDP will begin other tests to verify load-following, power quality and other performance features to validate megawatt -class carbonate fuel cell systems. The SCDP test results and other findings are to be fedback to the commercial unit's final design and planned PDI unit testing (see next section).

Product Design Improvement

Technology Development:

Efforts are targeted for improved fuel cell component performance and materials content reduction to lower costs. These advances will also affect enhanced fuel cell power density, component life and stack reliability. Additionally, ERC will have achieved over 150,000 hours of cumulative testing of carbonate fuel cell stacks and systems exceeding by far the most hours tested by any other advanced fuel cell technology. These accomplishments assure continuation of U.S. dominance as the world leader in carbonate fuel cell technology, and with it some assurance for protecting the many jobs and trade benefits created as a result.

Fuels flexibility remains one of the most important market attraction features of the fuel cell, offering operational alternatives for power plant managers when fuel prices fluctuate. Test verification of military logistics fuels will be completed in the coordinated DOD/DOE program co-sponsored by the Advanced Research Projects Agency (ARPA).

An acceptance test facility will be constructed at ERC for fuel cell stack module performance verification, alternative fuels testing and a 10,000 hour test of the PDI unit. The commercial plant design will incorporate improvements recognized from the R&D effort and the results from the PDI activities at the acceptance test facility. These would include improved fuel cell performance, reductions in equipment costs, and proficiency in performing field functions-module handling and installation, plant start-up and acceptance operations.

PDI Unit:

The PDI unit's construction phase will commence. The unit will be initially placed at the acceptance test facility to test and qualify the new stack module and pre-commercial BOP hardware assemblage prior to placing production orders with FCE's subcontractors. This effort is coordinated with attaining firm orders from the FCCG buyers for their early production commercial units. The PDI unit may then be transferred to a host utility site for operational evaluation in an end-use environment. This evaluation and the associated deliverables marks the effective completion of the ERC contracted program.

Commercialization Planning:

In FY 1997, the prototype commercial stack will be constructed by ERC's stack manufacturing subsidiary prior to final tooling and production machinery procurement in anticipation of manufacturing the first series of commercial units. This initiative is the major R&D challenge remaining along with integrating the stack impacts on the overall plant design.

Activities associated with attracting additional commercial unit orders will continue. In 1997, FCE will increase its staff and associations in order to reach more potential customers, with initial emphasis on domestic applications. There is a strong attraction to sell to foreign nations, however, ERC believes that product worth and quality must be established within the U.S. where servicing delivered units is more easily accomplished. Once proven, ERC anticipates that foreign markets with dispersed populations, eager for electrification and absent a national grid-like infrastructure, will be very interested in this clean, high efficiency, fuels flexible generation option.

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

SARA WARD, CHIEF, OFFICE OF ENERGY EFFICIENCY, OHIO DEPARTMENT OF DEVELOPMENT

Mr. REGULA. Next is the National Association for State Community Services Programs, Sara Ward.

Ms. WARD. Good morning, Mr. Chairman. I'm very pleased to be here. My name is Sara Ward, and I'm a State energy office director in the State of Ohio. I'm glad to finally be here.

The State energy office in the State of Ohio administers the State grant programs and the weatherization program. And I want to say how much we appreciate the support that the committee has provided to all of those programs. Today, I'm specifically here to talk about the low income weatherization program on behalf of the national association that represents all weatherization programs.

My testimony is in support of 1997 funding at a level of $192 million which is roughly a 15 percent reduction from the 1995 appropriation level for weatherization, and we believe that this is a consistent level compared to other energy and efficiency and renewable reductions that have occurred in the past year. The weatherization program has been measured and demonstrated to provide significant savings; 18.2 percent is the national average for savings for services for the weatherization programs, and that was back in 1989. And because of the strong support that the committee has given the program over the past four and five years, we certainly believe that that has increased. The technology has improved, and we believe that the savings is closer to the mid-twenties range although there have not been new national studies done.

Weatherization pays back an estimated $3 for every dollar that is spent by this committee.

Mr. REGULA. Why would companies or hospitals or schools weatherize on their own since they get these great savings?

Ms. WARD. Well, this program provides services just for low income residents. I'm sorry, I should have made that more clear up front.

The other thing that you should know is that the weatherization program does produce directly 52 jobs and indirectly another 22 jobs for every $1 million that is appropriated in the program.

I mentioned the study that was done by Oakridge National Labs back in 1989, and the fact that we feel that the technology has advanced significantly in the past few years. In fact, this program is probably the closest thing that you have to a national laboratory that provides services in every State, every county, and every community of the country. This laboratory has produced new technology for residential energy efficiency services that is not available yet in the market place as a standard today, and I think that it is important that that commitment has come as a result of the commitment on the part of the local agencies and the States administering this program and wanting to get the best result out of every public and private dollar that we are able to leverage for the program.

The weatherization——

Mr. REGULA. You have about one minute left.

Ms. WARD. One minute yet, okay.

The weatherization program in Ohio has leveraged somewhere in the neighborhood of about $6.6 million that is not administered through the State program. That has come from private sector donations but primarily utility sources. About 80 percent of that has come from utilities.

Mr. REGULA. Would this be where you check off when you pay your bills?

Ms. WARD. No, this is actually utilities sitting down and negotiating with local programs to put integrated programs together.

Mr. REGULA. A block of money.

Ms. WARD. That's correct. And one of the initiatives in Ohio that you might be particularly interested in—and that I hope you have an opportunity to observe sometime when you're back in the State—is the Home Energy Rating System where we are actually trying to commercialize the services in the low income program and make them available in the market place. Bill Morgan is the president of the board of the organization called HERO, and he said to say hello for him.

So, if you have an opportunity to come see the program in operation, we would love to have you. I've provided a brochure that explains those services, but the thing that you need to understand is that the weatherization program has been able to take this into the market place because of the support it has received from Federal funds, and that that partnership is very, very critical to the success of this effort.

In closing, I'd just like to say that we have again enjoyed the support of this committee. We would like to continue to see the support of this committee come through with a very strong message of funding for the future.

Mr. REGULA. Thank you for coming. You know we are making some reduction in our dollars, so it makes it quite a challenge.

Ms. WARD. I understand. We think it's a worthy challenge.

Mr. REGULA. Okay, thank you.

Ms. WARD. Thanks.

[The statement of Ms. Ward follows:]

Testimony presented by Sara Ward, Chief, Office of Energy Efficiency, Ohio Department of Development on behalf of the National Association for State Community Services Programs (NASCSP).

Mr. Chairman, and members of the Committee I am pleased to be here to speak to you on behalf of the National Association for State Community Services Programs (NASCSP), whose members are the state directors of the Weatherization Assistance Program, and the Ohio Office of Energy Efficiency. My testimony is in support of FY 1997 funding of $192 million for the Department of Energy's Weatherization Assistance Program (DOE/WAP). This request represents a 15% reduction from the FY 1995 Appropriation for this program. This reduction is consistent with other reductions made in FY 1996 in the energy efficiency and renewable accounts.

NASCSP recognizes that this is a year in which a number of worthy programs are seeking your attention for increased appropriations, and also a year in which your committee's funds are limited. We have traditionally supported continued funding for the State Energy Conservation Grant Programs and our support for these initiatives remains strong today. Weatherization is one of these programs, and demonstrates the competitive edge that the State grant programs offer.

- WAP produces an average of 18.2% in space heating energy savings.
- WAP pays back an estimated $3 for every dollar this committee appropriates.
- WAP outperforms utility company demand side management (DSM) investments in residential programs.
- WAP produces 52 direct and 22 indirect jobs for every million dollars appropriated, more jobs per dollar than any other program proposed to you for funding.

BENEFITS OF WEATHERIZATION

The primary purpose of the Weatherization Assistance Program is to increase the energy efficiency of residences occupied by low-income citizens; however, the program benefits every American by providing a more efficient and internationally competitive economy, by creating jobs and by improving the environment through the reduction and prevention of pollution.

Weatherization is an investment of taxpayer dollars that has a proven return in energy savings. According to the 1989 evaluation by the Oak Ridge National Laboratory, the program saved $1.72 for every dollar appropriated. Advances in the past seven years have increased the savings to an estimated three dollars for every taxpayer dollar.

These dollars remain in each community as discretionary income. The Weatherization program does not give a low-income household a check. It increases the household's disposable income by reducing its energy costs which makes energy costs more affordable. Weatherization is a program that has proven it can reduce energy consumption. While the actual annual dollar savings may fluctuate, from year to year depending on the cost of fuel to the customer, we know that the weatherized home will reduce that customer's energy use year after year. This reduces their dependence on programs like the Low Income Home Energy Assistance Program (LIHEAP), known as HEAP in Ohio.

Weatherization not only saves money, it saves energy. In its evaluation of the program, ORNL found that weatherization investments in 1989 alone will save the Btu equivalent of 12 million barrels of oil over the lifetime of the measures installed. These savings are increased each year of the program. Governor Lincoln Almond (R-RI) described a recent occurrence that may bring some of this information into focus. On January 19, 1996, the oil barge North Cape went aground on the coast of Rhode Island, spilling 828,000 gallons of heating oil into their waters. The Rhode Island Weatherization program has saved more than 50 times the amount of oil that endangered their vital fishing industry and damaged their sensitive ecosystem.

Weatherization is a primary source of technology development. The Weatherization Assistance Program is the undisputed leader in the deployment of advanced residential energy efficiency technologies. It provides the real-world laboratory for testing of new technologies such as air infiltration diagnostic tools, testing for duct leakage and health and safety measures.

The Weatherization program helps people stay in their homes and preserves affordable housing. A 1989 study by Oak Ridge National Laboratories (ORNL) indicated that low-income persons whose homes were weatherized moved less often than those in a control group whose homes were not weatherized. This is a significant social return. It provides greater stability for households with children and assists elderly Americans by making it possible for them to continue to live in their own homes and maintain their independence. By preventing housing from falling into disrepair, more expensive rehabilitation and repairs are avoided.

The Weatherization program increases health and safety. For example, by identifying the presence of carbon monoxide and eliminating it, the program saves lives as well as prevents long-term effects from the presence of undetected carbon monoxide. Although hard to quantify, this benefits not only the households weatherized but society in general by reducing health care costs to Medicaid, Medicare and the private sector.

IMPORTANCE OF FUNDING FOR WEATHERIZATION

There are approximately 17 million households that are still eligible for, and in need of, assistance. For example, in Ohio, over 200,000 households are spending more than 25% of their annual income for their utility bills. This means a family of 4 with $18,938 annual income will spend more than $4,734 just on energy bills. The almost 50% cut in WAP in FY 1996 will mean that nationally **over 60,000 fewer homes will be weatherized, resulting in a twenty-year increase of 2 billion Btu consumed; an increase of over 1.3 million metric tons of carbon dioxide emissions and an increase of over $240 million in energy bills to the poor as compared to FY 1995**. A further loss of over $150 million in leveraged funds because of LIHEAP cuts and utility match reductions means these energy and environmental impacts resulting from DOE cuts represent just half the damage.

Equally important, given that 52 jobs are created for every million federal dollars invested, **the FY 1996 cuts will lead to the unemployment of over 5,660 skilled workers.** This will further erode the technical base built by DOE over the past decade by resulting in the closure of 400 local agencies and employers. Beginning April 1, Ohio is reducing its program by 37% and will serve over 4,000 fewer families than last year. In anticipation of funding cuts, local agencies began to eliminate personnel through attrition last fall, and new layoffs have begun. We estimate a future loss of 240 to 300 skilled workers statewide by the end of April. Yesterday, I learned that one agency, rather than reduce staff and loose the capacity to provide services in its Appalachian counties, will eliminate family health coverage for its employees to cut costs.

The Weatherization Program creates new market opportunities. In Ohio, the weatherization program, called the Home Weatherization Assistance Program (HWAP), has always been an integral part of the residential strategies that we, the State Energy Office, employ to bring solid cost effective energy efficiency technology into the marketplace. But the marketplace today is not geared toward providing objective information to consumers about how to select energy efficiency services that will result in capturing the true benefits that we know are possible.

To address this reality, in 1992 the Office of Energy Efficiency, embarked upon an initiative which resulted in the establishment of what is know as the Home Energy Ratings of Ohio (HERO) Foundation. The HERO Foundation has conducted market research that tells us that Ohioans want to be empowered to improve the environment for future generations and will do so if given the opportunity. HERO, in cooperation with the Franklin County Weatherization Program entered into a joint venture with the Columbia Gas and the 5th/3rd bank to market residential energy efficiency and health and safety services. Special financing is available to consumers to increase the comfort, safety and efficiency of their homes while contributing to the improvement of the environment. This, in turn, allows the Weatherization Program to generate new private sources of funds for their low-income clients.

The Weatherization Program leverages other funds. Funding from this committee to the Weatherization program is the core through which other funding for low-income residential weatherization flows. Historically, states have been successful in identifying additional sources of funds for weatherization but many of these sources are also facing funding reductions. The Low Income Home Energy Assistance Program (LIHEAP) which in 1995 provided an additional $139 million was cut almost 30% in FY 1996. Until this year, the Ohio HWAP was blessed with an annual supplement for weatherization services by the transfer of 15% of its HEAP. That changed this year because of the serious threat of significant reductions in HEAP federal funds. The administration decided that it may have to choose between long term relief for vulnerable Ohioans, and the possibility of someone freezing to death in the winter. The decision this year was to maintain HWAP's supplement from HEAP. However, it was at considerable cost to the fuel assistance benefits available to Ohioans this winter, and there is no guarantee that the transfer will continue.

Other sources of leveraged funds are also declining. The petroleum violation escrow funds (PVE) which are almost depleted, provided $198 million in 1989, but only $24 million in 1995.

Demand-Side Management (DSM) and other Public Service Commission ordered funds are also facing challenges as the electric utility industry is restructured.

The utility industry is going through the significant change from regulation to competition. One of the many significant policy issues that Ohio and other states are facing is who will pay for the stranded investments and stranded benefits in an environment of competition. Another is who has the obligation to provide safe reliable service in a competitive environment. How will this affect vulnerable Ohioans? The impacts of restructuring are already being felt.

The States have been aggressive in seeking other sources of funds for this program. But without the core that the federal dollars provide, it will be impossible for the program to garner the extra support that will maintain the Weatherization program. For example, during the 1995 federal fiscal year the local HWAP network in Ohio leveraged a reported $6,633,641.46 to supplement the program within their local communities. Support comes from a number of sources including state and federal housing programs, local governments, landlords, charities such as the Red Cross and the United Way, churches, and private individuals. However, over 80% of these leveraged resources came from the utility industry. We are already experiencing reductions in support from the utilities since recovery mechanisms are in a state of uncertainty for the industry and the companies are more concerned with positioning themselves for the onset of competition. In 1994 we reported almost $1 million more in leveraged resources statewide than in 1995. Further utility investments are not likely to occur to the degree previously enjoyed until the mechanisms for paying for these services are worked out within each State. This process could take a number of years to work out, even in States that are ahead of the restructuring game.

This committee has the opportunity to avert considerable harm to the weatherization program and to a great many low-income Americans. The window of opportunity is still open to restore vital funds to this program in 1996 and in 1997.

During the years 1991 through 1995, the Weatherization Assistance Program has been at its most productive level in its history. This is due in part to the stable funding that this committee supported for the program. Stability in federal support for the weatherization program has never been more important to vulnerable senior citizens and American families than it is today. The partnership with the federal government has measurable payoffs every day that services are provided. But beginning with April 1, 1996, because of funding cuts, the weatherization program will no longer have the capacity to provide year-round services nationwide. This committee has the authority to ensure that services are provided nationwide year-round and that the skilled workforce which comprises the stable infrastructure of the program remains intact in FY 1996 and 1997. We respectfully request that you exercise that authority.

OHIO ENERGY BURDEN INFORMATION

Based on 1990 Census Data:

There are 693,526 households in Ohio below 125% of the poverty guidelines.

For a family of 4, this represents an annual household income of no more than $18,938 (1995 poverty guidelines).

Of the almost 700,000 households:

☼325,256 spend up to 15% of their income on energy bills (space heating and cooling, lighting, water heating).

☼87,273 more households spend between 15 and 20%,

☼62,862 spend from 20 - 25%, and

☼an additional 218,135 spend more than 25% of the household income on energy bills. This means at family of 4 with $18,938 annual income would spend more than $4,734 just on energy bills.

This information was extracted from a special census run requested by OEE. Energy Burden data is not published by the Census Bureau, but is obtainable through contract with the Census Bureau.
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POTENTIAL IMPACTS OF FEDERAL FISCAL YEAR '96 PROPOSED BUDGET ON OHIO'S HOME WEATHERIZATION ASSISTANCE PROGRAM

- A 37% reduction in funding for the LIHEAP program equals a 37% loss of $3,243,082 to Ohio's HWAP, which receives 15% of the state's total LIHEAP allocation. This is due to the supplemental summer crisis funds that were made available late last summer.

- For PY'96, HWAP services will be significantly reduced so that approximately 3,464 fewer households will receive services.

- The overall funding reduction is anticipated to be approximately 35% as demonstrated below:

	PY'95	PY'96
DOE	$12,908,522	$ 6,124,313*
HHS(includes summer crisis)	$11,451,965	$ 6,672,152
Total Federal	$24,360,487	$12,796,465*
PVE	$ 2,310,445	$ 5,000,000
Incentive	$ 289,046	$ 331,502
Carryover	$ 2,894,345	$ 1,401,086
Grand Total	$29,854323	$19,529,053
Total Units	10,761	6,400*

- At this lower funding level there will be six of the thirty-nine grantees at or below $150,000. Without other sources of funding services may not be available year round.

- It is doubtful that all current HWAP grantees will have the ability to plan for 12 months of service delivery for the PY'96 HWAP which begins April 1, 1996.

*Estimated because the DOE share is still not final. This amount represents 50% of the 1995 allocation.

2/21/96

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

JAMES C. CORMAN, GENERAL MANAGER, POWER GENERATION SYSTEMS, GENERAL ELECTRIC POWER SYSTEMS

Mr. REGULA. Welcome, Mr. Bevill. General Electric Power Systems, Mr. Corman. Thank you for coming.

Mr. CORMAN. Mr. Chairman, thank you for inviting me.

My name is James Corman. I'm general manager of Power Generation Systems for the power systems business of the General Electric Company. I'm here today to testify in support of DOE's advanced turbine systems program. GE has been a participant in this program since its initiation when this subcommittee appropriated funds in 1992.

My message is very straightforward. It is a very well-run program. DOE has conducted very competitive assessments at each stage of the program in order to get the industry's support for the program. They have requested us to integrate that with our product development strategy. We have done that. We have done that very effectively in the General Electric Company. We have made it a part of our product development strategy, and we are committed to the program. My message is very straightforward. We are requesting the Federal Government to honor their commitment the same as we're prepared to honor our commitment.

We are now in the third phase of this program which is the detail design phase of the advance gas turbine which will service this market. We've started out in the program with a goal of increasing the efficiency of natural gas use for electricity to 60 percent. This is a very stretch goal for us. The current machines run at about 55 percent efficiency. Those machines are being accepted worldwide today at the 55 percent level. Sixty percent will increase——

Mr. REGULA. So, you're saying that there's quite an export market for the technology?

Mr. CORMAN. Absolutely. Right now, as we view the program initially, when we started it as an internal GE program, we viewed it primarily as an export market. We viewed the export market as being the fastest growing market which is a 50 hertz market. So, we started our program on that 50 hertz base. The DOE/ATS program has allowed us to bring along in parallel the 60 hertz product which would service the domestic market. So when that market comes along we'll be prepared to address that market as well. We've gotten through the design phase, the preliminary design phase as part of the DOE program. We're now in the detail design phase, and we're ready to start commissioning the demonstration plant which is really the key to this technology. In order to get anything accepted by both the international and the domestic market place, you have to demonstrate, validate the technology at a full size. We're involved right now with three utilities which are committed under the ATS program to demonstrate this technology——

Mr. REGULA. When do you think you can go commercial?

Mr. CORMAN. We're committed to go commercial by 1999. Both internationally and domestically. The key to that, however is running that first plant, and we—the DOE/ATS program brings that along, supports that through the demonstration phase. This is a program which we view is not R&D for R&D's sake. We defined a termination point in the program, a completion of the demonstration program. It is well linked into our commercial strategy. We're committed to building these plants in the United States. They're built in Greenbelt, South Carolina, and they are exported around the world.

Mr. REGULA. Thank you. Mr. Bevill, any time you want to get in here on questions, don't hesitate.

Thank you very much.

[The statement of Mr. Corman follows:]

WRITTEN TESTIMONY OF
JAMES C. CORMAN
GENERAL MANAGER, POWER GENERATION SYSTEMS
GENERAL ELECTRIC POWER SYSTEMS
SUBMITTED TO THE
INTERIOR APPROPRIATIONS SUBCOMMITTEE
UNITED STATES HOUSE OF REPRESENTATIVES

March 7, 1996

Introduction

General Electric Power Systems (GE) supports the Department of Energy's (DOE's) Advanced Turbine Systems (ATS) Program for Fiscal Year 1997. The ATS Program is a joint program of the Office of Fossil Energy and the Office of Energy Efficiency and Renewable Energy GE is an industry participant in the utility aspect of this program. For FY 1997, the amount of Federal funds needed to cost-share in activities to be undertaken by GE as part of the Advanced Turbine Systems Program is $48 million. This requested amount is less than 40% of the projected cost for the GE Phase III and Phase IV portion of the ATS program in FY 1997.

The objective of the ATS Program is to develop, by 2000, the next generation of power system for utility and industrial applications using advanced gas turbines. This is consistent with section 2112 of the Energy Policy Act Through the ATS program, the Federal government is sharing with industry the risks in the development of this generation of power systems

For the utility portion of the ATS program, funding is required for FY 1997 to continue to completion the Phase III program (detailed design and component validation) and to begin the Phase IV program (siting of the first unit with a utility host and conducting full load testing) In FY 1997, the Phase III and IV activities must be in parallel in order to meet the commitment for operation by 2000

Gas turbines are rapidly becoming the technology of choice for current and future power generation systems Because they offer efficient fuel conversion, short installation times and lower installed cost, the current generation of gas turbine systems has gained wide acceptance The key to the advancement of gas turbine systems in the future is a strong technology base focused in three critical areas advanced gas turbine operating conditions, environmental compatibility, and fuel flexibility. The ATS Program addresses all these areas

For utility systems, the ATS program includes conceptual design, enabling technology development, component and subsystem experimental validation, and full scale first-of-a-kind, pre-commercial demonstration The program is substantially cost-shared, with industry contributing well over 50% of the project funding

The ATS program will keep U S turbine manufacturers on the forefront of power system technology This will enable U S companies to increase exports to the rapidly growing world market, in addition to supplying the domestic market

Status of the ATS Program

The ATS Program was initiated in FY 1992 with funding provided through the Interior and Related Agencies Appropriations Act. The program has a clear set of deliverables, an identified completion date, and great promise for future returns on the government's investment The aggressive technical goals of the ATS program include:

- ☐ achieving fuel to electricity efficiencies of greater than 60%;
- ☐ developing an environmentally superior power system that will reduce emissions without the need for post-combustion controls;
- ☐ providing a 10% reduction in the cost of electricity produced; and
- ☐ demonstrating the performance of advanced turbine systems for the marketplace by 2000

In 1993, GE was one of three companies competitively selected to participate in the Conceptual Design and Product Development phase of the utility portion of the ATS program. In August 1995, DOE selected GE as one of two companies to proceed to the Technology Readiness Testing and Pre-Commercial Demonstration phases of the program GE has received $12 million from DOE for the development of enabling technologies (in Phase II). In turn, GE has invested more than $40 million in parallel technology development and design activities

Significant industry cost-sharing is a hallmark of the ATS program In Phase IV of the program, GE and DOE, in conjunction with a host utility, will site the pre-commercial unit and conduct full load testing necessary to validate this advanced technology for electricity generation organizations around the world. Industry expects to cost-share approximately 70% of the costs of Phase IV.

Why the Federal Government is Necessary to Development of Advanced Turbine Systems

Even with the severe fiscal constraints facing the nation, GE believes that government investment in the ATS Program in FY 1997 and beyond is a prudent use of Federal resources In recent years, manufacturers have made upgrades in performance and incremental improvements that produce modest gains in turbine efficiency and emissions reductions But because of the risks involved, private industry would not be able to take the step to the ultra-high efficiency goal of the ATS Program unless the government shares some of the risk. The U.S. electric utility industry, which is facing challenges in the next decade to meet an increasing load demand in an uncertain regulatory environment, is not in a position today to make multi-million dollar investments in technologies and systems that are not yet proven.

GE estimates that bringing an advanced power generation system from a technology readiness status to a demonstration at a utility scale could cost in excess of $400 million. But by leveraging the investment of the private sector with Federal resources, the ATS program can achieve this objective by 1999, with Federal funding accounting for less than one-third of the total cost.

From a technical standpoint, achieving the efficiency goals of ATS will require thermodynamic cycle modification and changes in turbine design through innovative cooling and materials developments. The multidisciplinary approach of the ATS Program fosters sharing of information, expertise, and research facilities, which enables American companies to address areas of technical risk more quickly and effectively. Suppliers receive better information on critical technologies which support key component manufacture and supply By effective communication to the ultimate users, customer acceptance of this advanced system will be accelerated.

Federal Support Is Needed to Counter Foreign Support for Competitors

With the support of the ATS Program, U.S manufacturers will be better able to compete in the global utility turbine marketplace -- a marketplace in which foreign competitors frequently receive significant assistance from their governments. A $1 trillion international market in electricity generating systems is expected to develop over the next decade. Vast new market opportunities for power generation technologies are developing in China, Southeastern Asia and Eastern Europe Much of the market demand will be for advanced gas turbine systems The ability of U S companies to capture a significant share of this market may well depend upon successful completion of the ATS program.

As noted by the Task Force on Strategic Energy Research and Development in its report, *Energy R&D: Shaping our Nation's Future in a Competitive World*, private sector R&D expenditures in the United States are declining, and "a side effect of the current deregulation of the electric power industry will likely be substantial cutbacks in R&D in that sector " In contrast, R&D investments by other nations are moving in the opposite direction For example, Japanese government spending on energy R&D now is more than **twice** that of the U S. government The report further acknowledged that the U S is competing with nations, including Germany, France and the European Union itself, which have government policies supporting sustained public investment in long-term research and development. Moreover, in testimony prepared for delivery to Congress, the Secretary of Energy has observed that "other nations intervene persistently in their own markets and work aggressively to secure contracts for their companies in other markets. U S companies seeking overseas business are up against government subsidies from their competitors as well as trade barriers, complex bureaucracies, domestic preferences, and regulatory burdens -- all of which affect the prospects for success by U.S. firms."

This country has a large stake in maintaining U S global leadership in gas turbine technology, because exports of American turbine products are creating thousands of jobs for Americans. The Department of Commerce has estimated that every $1 billion of exports supports up to 20,000 direct jobs. Tens of thousands of Americans already work to manufacture gas turbines and to provide key components For example, in Greenville, South Carolina, GE Power Systems employs over 2,000 people to manufacture gas turbines, roughly half of which are exported In Schenectady, New York, another 1,000 people are employed in research and engineering related to gas turbine systems Overall, the number of employees directly involved in GE's gas turbine operations exceeds 4,000 In addition, GE estimates that U S component suppliers to GE's gas turbine manufacturing employ between 3,000 and 3,700 people. Located around the country, many of these suppliers are small businesses.

Taken together, the extent of foreign R&D support for U.S. competitors, foreign export promotion activities and the jobs and economic benefits of expanded U S exports of advanced power generation products make a compelling case for the continuation of the ATS program.

Fuel Savings and Environmental Advantages

By achieving the ATS goal of 60% efficiency, major reductions in fuel consumption will result. These fuel savings will in turn lower energy costs to U S. industry, thereby increasing the ability of U.S. companies to compete throughout the world

Of importance to the energy security interests of the United States, the ATS Program will permit greater utilization of domestic natural gas resources to meet power generation needs. The more efficiently natural gas can be burned to generate electricity, the more competitive it will be in the marketplace and the more likely it is that this fuel will continue to back out imported oil for electricity generation. This enhances our energy security and reduces the outflow of dollars for foreign oil. The natural gas industry, as represented by the Interstate Natural Gas Association of America and the American Gas Association, have supported the ATS Program.

Moreover, natural gas fired gas turbines are the cleanest fossil fuel power source. They produce no particulates, ash, heavy metals, toxins, or sulfur oxides. Additionally, the ATS will achieve a significant reduction in emissions of oxides of nitrogen, and will further reduce carbon monoxide and hydrocarbon emissions. The high efficiency of gas turbine systems make this power generation concept the most effective method of reducing carbon dioxide emissions from electricity generation. As many of these systems will be deployed in developing nations, their environmental benefits take on added importance

This advanced turbine system will also be fuel flexible It will be applied to coal fired systems, Integrated Gasification Combined Cycle, and will result in a significant performance increase and emissions reduction compared to conventional coal fired steam plants.

Conclusion

Government and industry have made mutual commitments to the ATS Program. Industry needs to be assured of continuing Federal support for this important program in the future The return on the nation's investment will be measured in high quality manufacturing jobs here at home; in lower cost electricity for the benefit of U S. industries; in reduced emissions associated with the production of electricity, in greater national energy security through greater utilization of abundant domestic natural gas; and in continuing U.S. power systems technological leadership for the 21st Century GE is convinced that, in cooperation with the Federal government, we can develop and introduce an advanced turbine system sooner and better than our foreign competitors This is why GE has made the Advanced Turbine Systems Program an integral part of our product development strategy

THURSDAY, MARCH 7, 1996.

NEH

WITNESS

ALEXANDER HAYS IV, FINANCE CHAIR, OHIO HUMANITIES COUNCIL

Mr. REGULA. Our next witness, Federation of State Humanities Council, Mr. Hays from the 16th district of Ohio. I bid a welcome to you. They tell me your weather is bad back home, so maybe you want to be here——

Mr. HAYS. Yes, it's getting worse, yes.

Mr. REGULA. I understand.

Mr. HAYS. Mr. Chairman, members of the committee, thank you for this opportunity to speak about the efforts of the Ohio Humanities Council in particular and to a larger degree about the other 55 councils within our country.

My name is Alex Hays and by profession I am a trust banker. I became associated with the humanities council through a program that was run in my community entitled Humanities in the Professions. If you can imagine a group of bankers, attorneys, accountants sitting in a room for four hours not only reading, but discussing the relevancy and the ethics of modern life to works of Dovstoesky and Gogle. But permit me to speak of the work of the Ohio Humanities Council because that is what I know best. Nonetheless, I hope that you will keep in mind that the variations of the Ohio programs I describe that are taking place with the support of our council are also taking place in each of the States and territories.

What compels me to come to Washington today is my belief, my sincere belief, that the work of the Ohio Humanities Council makes a vital difference to the lives of our citizens. Through encouraging projects that are collaborative, that create partnerships, the Ohio Humanities Council is a catalyst of stimulated new forms of cooperation and entrepreneurship among the State's cultural organizations. As an example, there were three museums in our community that wished to sponsor a World War II exhibit last year. They could not raise the money themselves, but with a grant from us, in cooperation with several local foundations, they've put on magnificent exhibits that was eventually seen by over 20,000 people. We also conducted our annual Ohio forum in Canton where we bring noted speakers to the communities. We invited Doris Kearns Goodwin, the Pulitzer Prize author who spoke on the subject of the Roosevelts and the homefront during World War II. That evening we had over 700 people attend. Our speaker's bureau, we have ten noted scholars in Ohio milling around our State speaking to groups of upward of 300 people discussing topics under the heading of community reconsidered.

Mr. REGULA. That's coordinated through the State council?

Mr. HAYS. Yes, sir, it is.

We have many exciting programs for our seniors. Last year we ran a program in Canton, Ohio where we involved 12 senior citizens that involved close to 1,200 seniors discussing discovery of the satire, activities that engaged them with their neighbors, was intellectually stimulating and got them out which was most beneficial.

In Cincinatti, Sister Joan Leonard has used council funds to leverage support from a host of other organizations to put on several meaningful programs in her five county area.

Several years ago in New Straitsville which is down in Perry County in southeastern Ohio, part of our Appalachia area, sent us a very interesting request for money, a very modest request, to provide oral histories, to begin to collect memorabilia to save their heritage. They are now in their fourth year of saving the heritage of this unique region of our State.

Ohio has a small native American community which since the mid 1800's has never really gotten into the province in our State. Through a grant and in cooperation with Kent State University, groups from Canada, Oklahoma, and other States, have finally come back to the Ohio Tuscarawas Valley sending representatives from the Delaware, Shawnee, Miami, and Wyandot Indians to hold the first grand council of the Delawares since 1769. Their third council will be held this year.

We conduct numerous teachers' institutes in Columbus and in Cincinatti where for three weeks, teachers in the summers can be reinvigorated so that when they go back to their schools they can impart to their students some of the excitement that comes from our program.

Mr. REGULA. Is that State money, Federal money, or both?

Mr. HAYS. It's our money. We receive no State money, sir. We receive private grants.

Mr. REGULA. So, it's all through private grants.

Mr. HAYS. Correct.

These success stories are echoed from State to State. I've attempted to show the State Humanities Councils, each directed by a volunteer board, representatives of the State at large, are uniquely positioned to respond to the needs of our citizens. The States are able to leverage private funding so essential to the continuation of our mission.

We view the money that we receive from you as we would from venture capitalists. You have given us money to invest. We hope that we have returned significant dividends through the benefits to our State and its citizens.

I'm reminded of what Ezekiel said. That, "Without vision, the people perished." We thank the Congress for the vision that it displayed for creating the National Endowment for the Humanities. Please allow the State councils to continue their work. We will find the energy and commitment necessary for the task expressed in the theme that we, the Ohio Humanities Council, have adopted for our next tri-annual period, "reflection and renewal, creating community for the next century." Everything that you have done for us we deeply appreciate, and as stewards of this trust, we hope that we have acquitted ourselves well. Thank you.

Mr. REGULA. Thank you. Question: what percent of the State's humanities council budget comes from NEH?

Mr. HAYS. I can only address Ohio, Mr. Chairman. It's approximately 80 percent at the present time.

Mr. REGULA. Eighty?

Mr. HAYS. Eighty. The other 20 percent we raise ourselves.

Mr. REGULA. Doesn't the State contribute any?

Mr. HAYS. No.

Mr. REGULA. You get nothing from the State budget?

Mr. HAYS. Nothing from the State, and yet many people in Ohio view us a State agency.

Mr. REGULA. You wouldn't survive without the Federal dollars?

Mr. HAYS. Correct. And we have now embarked on several unique fundraising and development funds. We have created funds through generous grants from donors with the Starr County Foundation in Canton, the Cleveland Foundation, to ensure that people in the State view us as a Statewide organization.

Mr. REGULA. Thank you.

Mr. HAYS. Thank you, sir.

[The statement of Mr. Hays follows:]

Mr. Chairman, members of the committee, thank you for this opportunity to speak to you about the successes of the Ohio Humanities Council in particular and, to a larger degree, the other 55 councils within our country. My name is Alex Hays, and by profession I am a trust banker.

Permit me to speak of the work of the Ohio Humanities Council because that is what I know best. Nonetheless, I hope you will keep in mind that variations of the Ohio-based projects I describe are taking place, with the support of the humanities councils, in each of the states and territories. What compels me to come to Washington today is my belief that the work of the Ohio Humanities Council makes a vital difference in the lives of our citizens. The reasons for its unique impact are many. It is through the power of the humanities--the accumulated wisdom of human history, literature, philosophy--that we are given vision. It is with the tools of the humanities that we are given voice. And it is the sharing of the humanities among all our citizens that allows us richer knowledge of our past, a clearer understanding of our present, and a foundation for dialogue about a strong, viable, hopeful, and fruitful future for all.

Through encouraging projects that are collaborative, that create partnerships, the Ohio Humanities Council is a catalyst, stimulating new forms of cooperation and entrepreneurship among the state's cultural organizations. In 1995, the three largest museums in Canton, Ohio and Stark County pooled their staffs and collections and joined together to submit a proposal to the Ohio Humanities Council to mount three exhibitions and related discussion programs on the theme *Victory Remembered,* marking the fiftieth anniversary of the end of World War II. One exhibit included an array of recruitment, refugee relief aid, and home front posters; another focused on local newspapers, detailing war events, and artifacts emphasizing the domestic impact of rationing, civil defense, and industrial war production; the third dealt with photographs taken by service men during their tour of duty. Many of these items never before had been viewed as part of public exhibitions.

The overall budget for *Victory Remembered* was more than any one of the museums could alone support. The foundations and corporations that finally supported the project, along with OHC, each cited its collaborative nature as a key element in the decision to award funding. The momentum of this initial fundraising success led other organizations--a hospital, a college, a veteran's group, the YMCA--to participate in the project. A Victory Garden on the grounds of the Hoover Historical Society was an outgrowth of this cooperation. In the words of a local historian, "*Victory Remembered* has brought together an array of community resources in an effort to promote civic education and to honor those who served their nation at home and overseas in the 1940s. From an historical perspective it is fitting that an exhibition, highlighting community efforts and sacrifices on the home front in Stark County, supporting the U.S. efforts to win World War II, has opened the way for collaboration to tell this story fifty years later in 1995."

To cap off the exhibits and discussion programs, OHC decided to hold the Ohio Forum in Canton in 1995. Each year, since 1991, OHC has brought an outstanding humanities speaker to a different city, in conjunction with other cultural activities. In Canton, to highlight the commemoration of and reflection on an earlier period of U.S. history, OHC, with the leadership of the Canton Art Institute and the support of local foundations, brought Doris Kearns Goodwin, Pulitzer Prize winner for *No Ordinary Time*, to speak about the Roosevelts and the home front during World War II. Over 700 people, young and old, filled the Palace Theater in downtown Canton on a warm summer evening in June, to hear Ms. Goodwin's talk. All told, the *Victory Remembered* exhibits and programs drew over 20,000 people from Canton and Stark County.

Equally compelling in its subject matter, and just as economical, OHC's Speakers Bureau reaches Ohioans across the state. The energy, the excitement, the opportunity to engage in dialogue with the best of the state's scholars are seen most dramatically in the Ohio Humanities Council's Speakers Bureau, whose success speaks to a real thirst among all our citizens, whether urban or rural, more educated or less, professional or working class, to participate in a process of lifelong learning. "Community Reconsidered" is the theme that has linked the 30 available talks by the ten Speakers Bureau scholars. As I present you with a sampling of these topics, I ask you to consider: Who but a state humanities council is in a position to serve the intellectual, cultural, civic needs of its citizens, at all levels, across the board, at minimal cost? Who is better positioned than a state humanities council to serve as a catalyst, bringing together thus far Ohioans from 44 counties to consider thoughtfully and from many vantage points, that most fundamental of concepts--the notion of "community"? At the Lions Club in Mt. Vernon and the Rotary Club of Canton, at the Tuscarawas County Historical Society, at public libraries in Chillicothe, Massilon and Sandusky, at the Bergamo Center for Lifelong Learning in Dayton, and the United Methodist Church in Strongsville, our state's citizens have come together to learn about topics such as the Idea of Family in Homer's *Odyssey*, the Slavic experience in southern Ohio, Community Standards and Free Speech, Ohio and the Global Village, Community Standards and Free Speech, and the legacy of Paul Laurence Dunbar, nineteenth-century poet, Ohioan, and descendant of slaves.

How have Ohioans responded to these unique opportunities? Let's listen for a moment to their voices:

* "Dr. Martin is the best speaker we've had....We all wanted to be his students [because of] the joy and positive impression he left with each of us."

* "Thank you so much for having someone of Dr. Hunker's caliber available to our group."

* "The greatest part of this event was the unusual interaction among our communities."

* "I overheard numerous comments like, 'I never knew that before.'"

* "He transported us to a time of pain as well as joy in the lives of his people."

* "He was tremendously effective. Audience members posed many questions and were reluctant to let him get away."

With audiences numbering as large as 300, I'm hard-pressed, both as chair of OHC's finance committee and as one whose profession is in finance, to come up with another example of continuously rich returns on so modest an investment.

I want to leave you with the impression that the Ohio Humanities Council, like the other state councils, is an agency uniquely positioned to bring diverse individuals and groups together--to discover an almost lost heritage, to examine the important challenges of the present through the lenses of the humanities, to plan thoughtfully, hopefully, and with a sense of renewal for a community of the future in which we all want to live. Let me cite another example of OHC's work that is both cost effective and reaches out to a special audience--Ohio's senior citizens. In describing programming targeting our older Ohioans, I note the Council's firm commitment to carry out its mission: "to support public programs that have the power to enhance the quality of our lives by helping us to interpret our own experience, to strengthen our sense of community, and to connect us to a wider world."

The relevance of this mission to the conditions in Stark County is evident, for over 33,000 of households in the 65-plus age group live in poverty. Not surprisingly, members of this isolated population lack access to programs such as those offered by the Ohio Humanities Council. Thanks to the ability of the Council to forge partnerships with those who would support its work, two of the county's foundations--the Stark County Community Foundation and the Hoover Foundation--have joined with us to underwrite the cost of these humanities programs. In 1995, ten senior citizen centers are the venues for a year-long series of humanities programs. Like the pilot project--"Discovery at the Center"--on which it is based, the Stark County project provides educational and entertaining programs that engage the mind, enliven the spirit, and provide opportunities for fellowship among the generations. Live theatre, followed by post-performance discussions, poetry workshops, programs on Ohio's early settlers, a "tour" through nineteenth-century America, using diaries, journals, music of the period--these are some of the rich, engaging programs that our state's senior citizens are fortunate to be receiving.

Again, the voices of the participants speak for themselves:

* "It's the best thing that's happened to this center ever. The whole community is starting to come in. I don't know what we'll do when this program ends. After each performance, the senior want to know when the next one is going

to be."

* "Aside from the aspect of entertainment and socialization, the educational contributions have been invaluable."

* "I never realized how important the Ohio River was in the journey from slavery to freedom."

* "I liked learning how current events helped in the music and song writing."

* "I could listen for hours. Let's have more programs like these, more often."

* "This was a plus for our community, something we need and appreciate."

In Cincinnati, Sister Joan Leonard has used Humanities Council funds to leverage support from a host of other sources to sponsor a project entitled "The Victory Was Ours, Too," commemorating the fiftieth anniversary of the end of World War II. As director of the Arts and Humanities Resource Center for the Elderly, Sister Joan uses OHC's support to provide model programs at 75 nursing homes, senior centers, and retirement communities in a five-county area surrounding Cincinnati. The World War II "Victory" project included an exhibit (viewed by 9,000 Cincinnatians of all ages) highlighting the contributions of the older people involved in that war, a concert of World War II music, literature discussions, radio interviews, and the sharing of their war experiences by the elderly with area school children. Geof Giglierano of the Cincinnati Historical Society expresses the project's unique contribution: "It put a human face on this essential part of the war effort. In all the memorial celebrations no one else had thought to interview this important segment of the population."

The sons and daughters of Ohio's Perry County's coal miners, proud of their history, have used federal funds entrusted to the Ohio Humanities Council for programs that effectively help them reclaim their past and hand it down to their children. Living in one of the poorest counties in Ohio, Perry County residents have always found ways to make federal dollars go a long way. This seems routine among people who solicited donations door to door for construction of the modern library building in New Lexington. In that building, small grants from OHC support book discussion programs, engaging participants in lively exchange. Funds in support of the "Little Cities of Black Diamonds" project sponsored by Sunday Creek Associates, a grassroots agency promoting the cultural, social, and physical regeneration of the New Straitsville community, brought together scholars and local citizens for extended discussions leading to a larger appreciation of traditions of independence and self-sufficiency, the lasting value of the hard work, thrift, and discipline the local residents learned from their parents in hard times. Most Americans do not know who Januarius McGahan was, but Bulgarians certainly do, and federal dollars help local groups develop programs that keep alive among Perry County school children the remarkable story of McGahan, the liberator of Bulgaria, one of their own.

In an area without corporations or foundations, the federal funds invested for culture provide support and encouragement for the community building efforts of people who are not afraid of hard work. Describing the value of the "Little Cities of Black Diamonds" project, historian Thomas Stevenson writes that the citizens "have been reminded that while many things have changed, the same strong will, pride and determination that characterized their past are intact." As the project demonstrates, these same qualities can be brought to life again in the interest of creating a better future for the children of Perry County. Stevenson cites the local history discussions, the support for building Millcreek School, the local history calendar projects and the opening of the Southern Perry County Museum as evidence that the focus on the rich heritage of the region "has been a successful avenue for mobilizing people." Stevenson concludes by calling for the channeling of efforts into "new programs that draw on this past [and] build for the future."

Native American groups have also become partners with OHC in their efforts to draw upon the legacy of the past to define a future, which now includes ties with Ohio as the home of their ancestors. Traveling from Canada, Oklahoma, and other states, representatives from the Delaware, Shawnee, Miami, and Wyandots returned to the Ohio's Tuscarawas Valley in 1994 to meet with historians of early Ohio history to share stories about their ancestors, their encounters with European settlers in the Northwest Territory, and their subsequent forced removal from Ohio by the mid-nineteenth century. Linda Poolaw, Grand Chief of the Delaware, viewed the 1994 forum, the third funded by OHC, as "an opportunity to become reacquainted, to exchange memories, and most of all to honor and to celebrate our elders." In speaking about the role of the scholars, who attended the meeting, Chief Poolaw noted, "It is the academic community which has...given us the keys to our past." Barbara Heckart, evaluator for the project, commented, "I felt as if I were part of history because this was the first meeting of these tribes in Ohio in over two hundred years." The groundbreaking work in this series of projects has made many Ohioans more aware of Native American history and Ohio's special connection to Woodland people living outside of the state today.

The broad reach of OHC's work is visible in its Teachers Institutes, which affect literally thousands of school children as their teachers, having completed humanities-based summer workshops, return to their classrooms. Like many other state councils, OHC has worked with urban public schools to create summer institutes that offer elementary school teachers intensive courses of study in the humanities. Elementary school teachers, as interpreters of the humanities, have a critical role to play, introducing children to stories that reveal how people deal with different ideas and customs. From 1993 to 1995, the Ohio Humanities Council held summer institutes in Cleveland, Columbus, and Cincinnati, supported by local foundations, the public school systems, and NEH. The three-week long "Narrating Our Lives" institutes examined the role of myth and folklore in shaping communities and traditions. One teacher noted that "Often, we get overwhelmed by our teaching duties and do not have the leisure time to think and talk about great ideas. This was a wonderful ‘think tank’ in which I, too, could be a scholar again." All of the participants were grateful for the opportunity of working with instructors who were knowledgeable and accessible.

Institutes of this kind bring teachers back to the classroom better able to broaden children’s understanding about what is universal in experience and develop their appreciation and respect for cultural differences--an essential preparation for citizens in contemporary America and the world of the twenty-first century. As a teacher commented at the end of the institute, "I learned that we all have stories to justify or explain our existence, we need to appreciate and understand not only our own stories but those of others; we all are in the midst of a changing story." In partnership with public schools, state government, and foundations, the state councils have opened up new opportunities for learning, improving the quality of public school education through rigorous and rewarding humanities institutes.

Mr. Chairman and members of the committee, although it is the work of the Ohio Humanities Council that I have highlighted, these success stories are echoed from state to state. With the support of the Congress and the National Endowment for the Humanities, the state councils have been able to help sustain viable communities through enriched cultural experiences, educational opportunities, and fuller citizen participation in civic life. Many of the councils contribute to the quality of their state’s humanities education by providing for teachers institutes that improve the skills of hundred of teachers and affect the quality of teaching for tens of thousands of students. The councils help build the cultural infrastructure of their states, working with community-based organizations to create partnerships and programs those organizations could not build themselves. And significantly, with the public funds entrusted to them, the states are able to leverage private funding, so essential to the continuation of their mission.

Mr. Chairman, we endorse the budget proposed by the President for the NEH of $136 million. At a time when the survival of strong communities is a high priority in this country, the state councils have shown an entrepreneurial spirit in developing the resources, human and financial, to bring the power of the humanities to the task of improving the quality of life for all citizens. As venture capitalists, the state councils have produced impressive dividends. Now it is time to look to the future. Recalling the words of Ezekiel, who cautioned us that "without vision, the people perish," I thank the Congress for the vision it displayed in creating the National Endowment for the Humanities. I hope I have succeeded in demonstrating to you some of the many ways in which the state councils are making that vision real. Please allow the state councils to continue their work, building on their successes and moving toward a strong and vibrant tomorrow. You will find the energy and commitment necessary for the task expressed in the theme adopted by the Ohio Humanities Council for the next triennial period: "Reflection and Renewal: Creating Community for the Next Century." Thank you.

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

LINDA LeBOLD, CONGRESSIONAL DISTRICT COORDINATOR, AMERICAN ASSOCIATION OF RETIRED PERSONS

Mr. REGULA. The American Association of Retired Persons, Linda LeBold. Thank you for coming.

Ms. LEBOLD. Good morning.

I am Linda LeBold from North Canton, Ohio, and I am the Congressional District coordinator for AARP Voter Education Program.

Thank you for this opportunity that I can come and testify regarding appropriations next year for the Weatherization Assistance Program. This initiative has helped weatherize homes of more than 4.5 million families since the program first began 20 years ago. Before commenting on funding for next year, Mr. Chairman, the association would like to express its concern about reductions made in weatherization activities this year due to the impact of the stop gap funding bills. In addition, the $114 million provided in the regular Fiscal Year 1996 appropriations bill that was vetoed by the President represents a 47 percent cut below Fiscal Year 1995. We strongly urge Congress to reconsider the reduction previously adopted for this program in the regular appropriations bill and to restore these appropriations funds if at all possible. When action occurs on a final spending vehicle for the rest of the current fiscal year, we further urge—strongly urge, excuse me—that next year's appropriation be set at the 1995 level of $214.8 million. Weatherization assistance makes a real difference in the quality of life for many older Americans who are more likely to live in older poorly insulated homes.

In our own State of Ohio, Mr. Chairman, I am an RN who has worked in the passport program—which I am sure you are familiar with—which has given home health care aid to the elderly. I have been in many homes of low income elderly where the windows were stuffed with rags and I sat with my wool coat on the whole time. The weatherization program could make a difference. They have worked hard all their lives in very low income jobs. It's not their own fault. They have no pensions or extra benefits. They're living on social security alone. And most of them are widows. Most have small savings which were saved to bury them, and that is a direct quote. I used to hear that all the time. Their homes were built in the 1920's and 1930's and some are crumbling around them. There is no money left for weatherization repairs. In our cost cutting efforts, we must keep in mind this group of elderly and the consequences of deep cuts in this program, how it would negatively affect the quality of their lives such as it is.

Roughly one-third of all dwellings weatherized under the Weatherization Assistance Program are occupied by the older persons. Energy costs can be a burden for low income families often forcing difficult choices among basic necessities. This is especially dangerous for elderly households given their vulnerabilities to weather related illnesses such as hypothermia and heat stroke.

As a percentage of income, energy expenditures for households are about 50 percent higher than for the general population.

Thank you for letting me come and talk to you, Mr. Chairman, to comment on this program. I feel very strongly, and I——

Mr. REGULA. Thank you, and it is difficult because of our budget constraints.

Ms. LEBOLD. I realize that. But I've been there for five years, and it's very hard. These people were janitors, cooks. They came to Akron, Canton with the steel, rubber industries, and I'm sure all over Ohio. And they work very hard, and they are very proud of what they did.

Mr. REGULA. Were you part of the visiting nurse association?

Ms. LEBOLD. This is through the area agency on aging, the passport program, it is a Statewide program. A lot of the people that I saw, Chairman Regula, were people that were just above the Medicaid guidelines, but they would not give up that money, $5,000, in their savings accounts to get on Medicaid because they needed that for their kids or to bury them. And that's quite an issue.

Mr. REGULA. OK. Thank you.

Mr. BEVILL. Mr. Chairman.

Mr. REGULA. Yes, Mr. Bevill?

Mr. BEVILL. I have a question. I'm sure she has experienced it, but I see so many of our senior citizens that are having to choose between medicine and food.

Ms. LEBOLD. That's correct.

Mr. BEVILL. And many of my constituents are taking part of the prescription because they can't get the full and then part of it food. That's the way they are existing.

Ms. LEBOLD. That's correct. A lot of them do not want to go on Medicaid. They consider that welfare. Medication expenses for these elderly, sometimes if they are on cardiac drugs, $100 a month. And they are just living on social security.

Mr. BEVILL. And just to cut the cost of living in itself, it would of course mean that they would have to have less purchasing power.

Ms. LEBOLD. Right. They have to make some real serious choices.

Mr. BEVILL. When they—if their COLAs are cut?

Ms. LEBOLD. That's correct.

Mr. BEVILL. Thank you.

Ms. LEBOLD. Thank you.

Mr. REGULA. Thank you very much for coming.

[The statement of Ms. LeBold follows:]

Linda LeBold
Congressional District Coordinator
American Association of Retired Persons

Mr. Chairman, I am Linda LeBold, a Congressional District Coordinator in AARP's Voter Education Program. AARP appreciates this opportunity to testify regarding the Weatherization Assistance Program. This program is administered by the Department of Energy. The Association recommends that next year's appropriation be set at the 1995 level of $214.8 million. Weatherization Assistance helps low income households reduce their energy bills by funding such activities as installing weather stripping, storm windows and insulation. Energy costs are a burden on all low income families, often forcing such households to make difficult choices among basic necessities. This is especially true with the elderly, due both to their increased risk of freezing deaths or heat stroke and the fact that they tend to live in older, less well-insulated housing.

The Association is concerned about reductions made in weatherization activities this year, due to the impact of the stopgap funding bills. In addition, the $114 million provided in the regular fiscal year 1996 appropriations bill that was subsequently vetoed by the President represents a 47% cut below fiscal year 1995. If not reversed, these reductions will deprive thousands of vulnerable households of critically needed assistance. Further, these reductions will have a devastating impact on the existing service delivery system and impose hardships on States that want to continue energy conservation efforts but are unable to do so because of scarce resources. We strongly urge Congress to reconsider the 47% cut previously adopted for Weatherization Assistance in the regular appropriations bill and to restore these funds, if at all possible, whenever action occurs on a final spending vehicle for the rest of the current fiscal year.

The Department of Energy reports that, to date, its weatherization programs working in cooperation with Federal and State partners have increased the energy efficiency of over 4.5 million homes. Weatherization reduces energy consumption by an average of 17.6 Mbtu's per home, saving low-income residents millions of dollars. An estimated 5,300 skilled workers will be laid off nationwide because of the level of funding provided in the regular fiscal year 1996 bill.

Data from the Department of Energy's 1993 Residential Energy Consumption Survey indicate that low income households spend approximately 14 percent of their income on home energy, about three and a half times the percentage paid by the typical American household. The Survey further indicates that energy expenditures as a percent of income for older households are about 50% higher than for the general population.

The Residential Energy Consumption Survey also indicates that 35 percent of the homes occupied by older households were built prior to 1950, compared to only 26 percent of those occupied by younger families. These homes are typically less well insulated, more expensive to heat and in need of repair. Research by AARP's Public Policy Institute using data from the 1993 American Housing Survey shows that older households, especially minority older households, are more likely to occupy substandard housing. For example, among owner-occupied units, homes of older African-American households were almost four times more likely to exhibit severe or moderate quality defects. The 1993 American Housing Survey indicates that 64 percent of low income older owners did not devote any funds to routine maintenance or improvements such as weatherization.

Weatherization Assistance has made a crucial difference for many of these older households. Just under one-third of the dwellings weatherized under the program are occupied by older persons. The most recent full-scale evaluation of the Weatherization Assistance Program, a study by the Oak Ridge National Laboratory released in September, 1994, indicates that weatherization efforts through the Weatherization Assistance Program have reduced home energy heating expenditures by an average of 18 percent for households receiving the service. For households using gas or electricity, expenditures have been reduced 18 percent and 36 percent respectively. When combined with Low Income Home Energy Assistance benefits, the home energy cost burden is reduced further.

Emphasis in the Weatherization Assistance Program with respect to methods used has evolved from emergency and temporary measures (such as caulking and weather-stripping) to inclusion of those conservation remedies that on average produce the highest savings (e.g., combined attic and sidewall insulation). Personnel in the field are now much more experienced in determining which conservation techniques, under what circumstances, are most cost effective and save the most energy.

A particularly promising area for improvement in energy efficiency is in manufactured housing. Manufactured homes, more commonly referred to as mobile homes, are a major source of housing for low-income and elderly households. Although the Department of Housing and Urban Development adopted improved energy efficiency standards for new manufactured homes in 1994, the large stock of existing manufactured homes are not energy efficient. Households living in manufactured homes spend on average twice as much for energy per square foot of living space as do households living in single-family homes. Homes manufactured before 1975, representing 44 percent of the existing stock, are even less energy efficient.

Currently, approximately 20 percent of all weatherization work focuses on manufactured housing. Recent reports by the National Center for Appropriate Technology (NCAT) indicate that new weatherization techniques for pre-1976 manufactured housing can reduce energy bills by 30 to 50 percent These techniques are now being made available by NCAT to weatherization agencies across the nation. The combination of improved weatherization techniques and tougher energy efficiency standards for new manufactured homes promises major improvements in energy efficiency for this form of housing and substantial benefits for low income residents.

DOE's supporting analysis for the 1990 National Energy Strategy indicated that long-term residential energy consumption could be reduced by 23 percent through a gradual introduction of the best available conservation technology. The analysis also noted that to make a major contribution in the short-term, conservation measures must focus on retrofitting existing buildings. In addition, the National Energy Policy Act of 1992 gives great emphasis to improving building efficiency. With a capability to weatherize approximately 250,000 dwellings a year, continuation of the Weatherization Assistance Program is essential to meeting national energy goals.

Thank you for this opportunity to comment on funding next year for this critical program.

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

LYNN DAVIDSON, ENVIRONMENTAL SOLUTIONS INTERNATIONAL

Mr. REGULA. Our next witness is Environmental Solutions, Lynn Davidson. Thank you for coming.

Ms. DAVIDSON. Mr. Chairman, Mr. Bevill, my name is Lynn Davidson. I'm with a group called Environmental Solutions International. I am here today on behalf of the National OCS Coalition.

Our organization has been involved in OCS issues for many years, and we appreciate the opportunity to present our views. Our testimony today is in support of the continuation of the existing moratorium on offshore oil and gas leasing in sensitive areas around the United States.

I'd like to request that our written testimony be in the record——

Mr. REGULA. It will, yes. All of the written testimony will be made part of the record.

Ms. DAVIDSON. In five minutes, I'll really have to cut this down.

Mr. REGULA. Yes, I know.

Ms. DAVIDSON. I know that you have heard from us year after year on the moratoria, and I don't want to bore you. We talk each year about the various States that are protected by the moratoria, the very big local communities, the fishing interests, the tourism interests and how they are affected by the threats posed by offshore development including oil spills particularly from transportation of oil. We talk about spills not being the only problem. Offshore oil and gas development brings with it very substantial discharges of toxic pollutants including heavy metals and very significant amounts of air pollution. We talk about pipelines, and we talk about the opposition being very consensus building. Both Republicans and Democrats alike are often—particularly in the States—are often opposed to——

Mr. REGULA. I've observed it.

Ms. DAVIDSON. Opposed to the development of offshore oil in these areas.

We also talk about the moratoria areas not being significant enough to threaten our energy security in this country. There are very, very small amounts of both oil and gas in those areas. As we have data from the Department of Energy as well as the Department of Interior to back that up, and it is in our testimony.

And we talk about alternatives. We always mention that there are lots of alternatives to digging up this offshore oil and gas development.

I'd like to deviate a little bit from the testimony and just to mention personally that I have been very concerned and, as I know many, many people have, about the growing dependence this country has on oil period, and how very little reserves our country has compared to what we use on a daily basis. And the very strong feeling I personally have for the need for some sort of national energy reduction plan. I can't go the grocery store without using a car. I can't come downtown without using a car. It is a very great concern, and I would like also to ask on behalf of the National NC Coalition if we might begin real dialog, an opportunity to talk to you a little bit more, not just myself, but the other members of the coalition.

Mr. REGULA. Maybe we can find time for that later.

Ms. DAVIDSON. Thank you very much.

Mr. REGULA. Okay, thank you.

[The statement of Ms. Davidson follows:]

Mr. Chairman and Members of the Committee:

The Center for Marine Conservation, Environmental Solutions Inc., Natural Resources Defense Council, Florida Public Interest Research Group, American Oceans Campaign, LegaSea (North Carolina), National OCS Coalition, welcome the opportunity to testify today on the federal government's Outer Continental Shelf (OCS) oil and gas development program. Our organizations have been involved in OCS issues for many years, and we appreciate the opportunity to present our views. Our testimony today is in support of continuation of the existing moratoria on leasing and drilling in sensitive coastal U.S. waters. The moratoria prohibit leasing off the east and west coasts of the United States, in Alaska's Bristol Bay and in Florida's Eastern Gulf of Mexico.

Background

The existing Congressional moratoria support the action taken by President Bush in 1990 to protect California, Oregon, Washington, Maine, Massachusetts, Rhode Island and the Florida Keys region from further leasing, and the Keys from any drilling, until after the year 2000. The Congressional moratoria cover these states as well as others that were left out of the President's protective action, including Bristol Bay, the mid- and south-Atlantic states and Florida's Eastern Gulf of Mexico. We strongly urge the Committee to renew these moratoria based on the following considerations.

1. The moratoria protect environmentally sensitive and economically important coastal and marine areas.

From California's Big Sur to Florida's Gulf beaches, from Alaska's fishery-rich Bristol Bay to the Jersey shore, the moratoria protect vital natural resources upon which the economies of coastal communities depend. The areas subject to moratoria encompass many if not most of the nation's coastal and marine crown jewels, including North Carolina's world-famous Outer Banks, Maine's spectacular coastline, the Florida Everglades, and the rocky headlands, pristine beaches and waters that support salmon and other economically crucial fisheries of the Pacific Northwest. Less famous, but equally important to the healthy functioning of marine and coastal ecosystems, are the numberless coastal wetlands, quiet marshes, fish spawning and nursery areas, seagrass beds and other critical habitats that form much of the nation's coast protected by the moratoria.

Threats posed by oil and gas development most notably include oil spills, particularly from the transportation of oil. But spills are not the only environmental concern related to OCS development. Offshore oil and gas development brings with it very substantial discharges of toxic pollutants, including heavy metals, aromatic hydrocarbons and radioactive pollutants, along with significant amounts of air pollution. The onshore infrastructure associated with offshore oil or gas can have very significant effects on the coastal zone. For example, OCS pipelines crossing coastal wetlands in the Gulf are estimated to have destroyed more coastal salt marsh than exists in New Jersey through Maine. Finally, the industrial character of offshore hydrocarbon development, be it oil or gas, is often inconsistent with the existing economic base in many coastal communities of tourism, coastal recreation and fishing.

2. There is broad political consensus in support of existing moratoria.

Opposition to offshore activity in the moratoria areas spans the political spectrum to an extent rarely seen in environmental debates today. For example, in Florida, the Governor, the State Cabinet, the State House of Representatives, all 23 members of the Florida delegation to the U.S. House of Representatives and both U.S. Senators have opposed leasing off that State's coast. In Alaska, both Senators and House Natural Resources Committee Chairman Don Young have opposed offshore oil activity in Bristol Bay, along with every Governor of Alaska since leasing was first proposed in Bristol Bay in the 1970s. From Maine to California, coastal states governed by Republicans and Democrats alike have expressed concern about and opposition to offshore oil and gas activities.

3. Continuing the existing moratoria will not threaten the nation's energy security or impact petroleum product prices.

Renewing the FY 1995 moratoria will not have any perceptible impact on the nation's energy security, or the price or availability of petroleum products. This is because the oil and gas in the moratoria areas estimated by the Interior Department represents less than one quarter of the nation's total OCS resources. Thus, the vast majority of the nation's OCS (and total) oil and gas will remain available for lease to the oil industry if the moratoria are continued.

With respect to price and availability, the real price of gasoline has declined dramatically since the first moratoria were imposed in the early eighties and no significant supply disruptions have occurred. With respect to gas development in the moratoria areas, Interior Department officials have pointed to "significant" natural gas resources off the coasts of Florida and North Carolina. However, we note that according to the Department's estimates of undiscovered economically recoverable gas, the Eastern Gulf of Mexico contains just 2.2% of the OCS gas and six-tenths of one per cent of the nation's total gas. The entire OCS from New Jersey to the Florida Keys contains less than 5% of the nation's OCS gas and 1.3% of the nation's total gas according to the Department's estimates. Forgoing development of these areas will not jeopardize the nation's natural gas future.

4. Many energy alternatives are available.

Alternatives to opening up the moratoria areas are numerous. For example, in 1990, the Department of Energy estimated that up to 15 billion barrels of oil could be recovered from existing fields under present economic conditions with currently available and proven technologies, if a well-designed enhanced recovery technology transfer program were implemented. This represents almost three times the amount of oil estimated by the Department to lie within the moratoria areas. In 1992, another DOE sponsored study estimated that some 24 billion barrels of oil -- more than seven times the amount of oil estimated by MMS to lie within the moratorium areas -- can be recovered from existing fields using existing technology, assuming a $20/barrel price level. These alternatives, along with other measures such as increasing the fuel economy standards for automobiles and other efficiency improvements, should be pursued before any consideration is given to developing hydrocarbons in the moratoria areas.

In summary, the moratoria protect some of the nation's most environmentally sensitive and economically important coastal and marine areas while allowing leasing to go forward in areas containing the overwhelming majority of OCS hydrocarbon resources. We strongly urge this committee to renew the moratoria.

THURSDAY, MARCH 7, 1997.

DOE

WITNESS

DAVID O. FINKENBINDER, DIRECTOR, NATIONAL MINING ASSOCIATION

Mr. REGULA. I understand, Mr. Bevill, that you will introduce our next witness.

Mr. BEVILL. Let me just get the next one.

Mr. REGULA. You want to skip over it for the moment.

Mr. BEVILL. Skip it just for a minute, yes, thank you, Mr. Chairman.

Mr. REGULA. OK. Next will be, then, the National Mining Association, Mr. Finkenbinder.

Mr. FINKENBINDER. Thank you very much, Mr. Chairman, Mr. Bevill. Thank you for the opportunity to testify.

My name is David Finkenbinder, and I am the director environmental affairs for the National Mining Association. As you are aware, the National Mining Association represents about three quarters of the coal production in the United States, almost a billion tons annually. We also represent a vast majority of minerals including iron ore, copper, gold, silver, uranium, lead, zinc, and phosphate.

There's a number of items, as you can tell from the agenda, that we are interested in with respect to the budget, Mr. Chairman.

To start off, the office of fossil fuels, NMA believes that the Federal Government's partnership with the private sector must be continued to provide the basis for a menu for the future of commercial technologies, several of which have been active in Ohio. The NMA realizes that the budgetary constraints have and continue to make successful clean coal programs vulnerable to spending cuts. As you see, $200 million was cut from the program last year. Initial budget reductions would significantly impact negatively this program. If the avoidance of funding is not possible, we urge the subcommittee to ensure that the DOE continues the program management practices which allow market forces to dictate the terminations needed to achieve cost savings.

As I am sure you are aware, we are extremely and adamantly opposed to the elimination of the Bureau of Mines, but the mining related industries and the mining companies took comfort in the fact that several of the functions that were critical to the BOM have been transferred to other agencies.

Mr. REGULA. Well, we're just trying to streamline it and get efficiency.

Mr. FINKENBINDER. I understand, sir. We appreciate that. Particular, transfer of information to the USGS is something that we strongly support, and the health and safety research function to the Department of Energy's Fossil Energy office is quite a positive move.

We are considerably concerned about the suggestion that the health and safety research function be transferred to NIOSH, the National Institute for Occupational Safety and Health. We understand that the administration is considering that, too, of course.

And we considered the limited resources remaining for the agency to perform these functions and that DOE is really the only agency that has the adequate scientific credibility, management technology transfer skills to accomplish this function. The management mechanisms and physical structures are already in place at this agency to coordinate these functions to analyze the proposals, priorities, prepare programs, evaluate, develop and execute technologies and transfer these programs to ensure that the research gets to the people that are using it in the field.

NMA is also concerned about the disposition of the environmental remediation work that has been done by the Bureau of Mines including the acid mine drainage which I think is a very important issue that I think that we need to look into in the Northeast and Appalachia and southeast Ohio. These projects include subsidence and acid mine drainage, and the results are important to the entire region. If this research function is not centralized, we're concerned and be picked up by one agency or another or we'll have piecemeal, inefficient research.

Mr. REGULA. Well, we hope that if this phase out continues that you will give us the benefit of your advice as to how we can achieve the mission of the Bureau of Mines and using OSHA, USGS, EPA, and so on.

Mr. FINKENBINDER. Well, we appreciate the opportunity to do that.

Mr. REGULA. We don't want to have any functions not done, but we want to avoid duplication in order to save money in the long term.

Mr. FINKENBINDER. On USGS, we feel very strongly on the continuation of the data collection since it's very few people that have been accomplishing that and it's used by not just industry but others.

With respect to the Office of Surface Mining, we feel strongly with respect to duplication issues there, since the State programs become more and more efficient as they mature and feel that there should be cuts back——

Mr. REGULA. Well, I think that was the intent of the strip mining law was to move as much as possible to the States.

Mr. FINKENBINDER. And the States have done an excellent job in the reproduction of that. That does eliminate some fundings that might be available.

We also feel that the billion dollar plus surplus that is in the Surface Mining Reclamation Fund should be made available to the extent possible to get this money onto the ground to correct the problems and make sure the reclamation is accomplished.

One last thing, Mr. Chairman, we feel that it is necessary that the Bureau of Land Management and the Forest Service be adequately funded to ensure that they can accomplish their missions and permit review and EPA or NEPA review so that mining interests, much of which occur on Federal lands, can be accomplished. They are generating revenue, and they are very important for local economies in the areas in which they are located. And we urge that you provide adequate funds so that these permits can be processed and the business at hand be accomplished.

We appreciate the time to come and speak with you, and we look forward to continuing the dialog.

Mr. REGULA. Thank you very much. We're going to suspend for a minute for a couple of pictures. First of all, we'll have one for the 16th district if you'll come back to the witness chair here.

Mr. Bevill, I'll give you the chair, and you can call your witness.

[The statement of Mr. Finkenbinder follows:]

STATEMENT FOR THE RECORD OF DAVID O. FINKENBINDER, DIRECTOR, ENVIRONMENTAL POLICY, WATER, SURFACE AND COAL REGULATION, NATIONAL MINING ASSOCIATION (NMA)
HOUSE INTERIOR APPROPRIATIONS SUBCOMMITTEE
MARCH 7, 1996
FISCAL YEAR 1997 PROGRAMS

On February 13, 1995, the National Mining Association (NMA) was created through the merger of the National Coal Association (NCA) and the American Mining Congress (AMC). NMA's member companies account for approximately three-fourths of the coal production in the United States, over one billion tons annually, and the vast majority of minerals including iron ore, copper, gold, silver, uranium, lead, zinc, and phosphate. The purpose of this statement is to present the NMA's views on FY 1997 programs for the following agencies: Office of Fossil Energy (Department of Energy), Energy Information Administration (Department of Energy) disposition of functions previously performed by the U.S. Bureau of Mines, U.S. Geological Survey (Department of the Interior), the Office of Surface Mining (Department of the Interior), the Bureau of Land Management (Department of the Interior) and the Forest Service (Department of Agriculture).

OFFICE OF FOSSIL ENERGY

The NMA believes the federal government's partnership with the private sector must be continued to provide the basis for a menu of future commercial technologies. No single technology can solve the problems of energy efficiency and environmental protection. Therefore, we support the following Fossil Energy programs to enhance the clean and efficient utilization of coal by developing and commercializing technologies for domestic and international markets.

- **Clean Coal Technology Program.** The Clean Coal Technology Program is a highly successful industry and government partnership designed to demonstrate a new generation of innovative coal processes. This partnership must be continued in order to obtain the multiple benefits derived from coal utilization and clean coal technologies domestically and internationally. The NMA realizes that budgetary constraints have and continue to make the Clean Coal Program vulnerable to funding cuts, such as the $200 million cut made to the program last year. Additional budget reductions would significantly impact the program. If the avoidance of funding cuts is not possible in FY 1997, the NMA urges the Subcommittee to ensure that the Department of Energy continues its program management practices which allow market forces to dictate project terminations needed to achieve cost savings.

- **Coal Research and Development.** In the Advanced Clean Fuels Research Program, various advanced coal preparation technologies assure the continued use of coal in traditional applications in large industrial and electric utility boilers, as well as opening new markets for high quality coal use in turbines for power generation and liquid fuels. Even though the cost per barrel of these liquids does not yet compete with oil, it is important to maintain a reasonable level of research and demonstration of promising systems as an insurance policy against the disruption of imported oil to the U.S.

In the Advanced Clean/Efficient Power Systems program, the NMA is in favor of continued funding for the Advanced Pulverized Coal-Fired Power Plant program (the low emission boiler system) which builds on the solid performance history of conventional pulverized-coal-fired boilers.

Within the Advanced Research & Technology Program, the NMA supports the goal to develop the advanced turbine system, fuel cells, and the development of hot gas clean-up systems, which will allow the gas from the combustion system to be cleaned without lowering its temperature and energy level by quenching it prior to clean up.

- **The Cooperative R&D Program.** The NMA believes the Cooperative R&D program with industry at the Western Research Institute in Wyoming and the Energy & Environmental Research Center in North Dakota have value because of their potential for near-term payback through commercialization. The programs continue to deserve the emphasis placed on them in the past years, especially because they involve cost-sharing with industry and therefore reflect the industry's interests.

- **National Laboratories.** The Department of Energy can also promote fossil energy R&D by making maximum use of its existing research facilities, including those national laboratories which traditionally have not been highly active in fossil energy. In 1990, the National Coal Association (now the National Mining Association) took the initiative to create a more effective partnership between the coal industry and researchers at National Laboratories of Argonne, Los Alamos, Oak Ridge and Sandia, in addition to the Morgantown and Pittsburgh Energy Technology Centers. This partnership's continuing mission is to stimulate, facilitate, and/or coordinate the development and transfer of technology to the coal industry through technical information interactions and future collaborations with the National Laboratories and Centers.

ENERGY INFORMATION ADMINISTRATION

The functions performed by the Energy Information Administration (EIA) are of major importance to the coal and energy industries. EIA is an independent agency whose unbiased analysis and independent short and long term forecasts form the basis for reasoned and responsible policy decisions by the Congress, the Department of Energy and other government agencies on both the federal and the state levels. EIA's coal and energy data collection and dissemination responsibilities are vital to our industry's ability to evaluate production and market trends, thus make more reasoned business decisions.

DISPOSITION OF BUREAU OF MINES FUNCTIONS

While the NMA was adamantly opposed to the elimination of the Bureau of Mines (BOM), the mining and related industries took comfort in the fact that several critical functions performed by the BOM would be transferred to other agencies. In particular the transfer of minerals information to the U.S. Geological Survey and the health and safety research to the Department of Energy's Fossil Energy Office are viewed as most desirable. However, the NMA's comfort level was eliminated by the suggestion that the health and safety functions be transferred to the National Institute for Occupational Safety and Health (NIOSH) at the Department of Health and Human Services. It is our understanding that the Administration's FY '97 Budget will contain such a proposal.

Considering the limited financial resources remaining for an agency to perform the safety and health functions, the only one with adequate scientific credibility, management and technology transfer skills is the Fossil Energy Office. The management mechanisms and physical structures are already in place at this agency to coordinate mine safety and health research with other agencies; analyze specific proposals for scientific credibility; prioritize and prepare specific programs for the development of research contracts for industry and academic agencies; and evaluate, develop and execute technology transfer programs to ensure research accomplishments are made available to the mining industry.

In addition to the concerns regarding the safety and health functions, the NMA is extremely concerned about the disposition of the environmental remediation research projects that the BOM has undertaken in the past. These projects include but are not limited to acid drainage, abandoned mine inventory site characterization, mine subsidence and restoration of hazardous mineral sites. The results of these projects and studies are important to all residents of mining areas - - miners, operators, and others that benefit directly and indirectly from a healthy environment and mining industry. If this research function is not centralized, individual agencies will attempt to conduct research in these areas in a more costly piecemeal fashion, and the quality of the research and the transfer of the resulting technology will suffer. The losers will be government, industry and private citizens that may end up paying more than once for the same product of a lesser quality.

Further, an additional concern, is that as regulatory agencies pick up these research functions, there is an increased possibility that regulatory agencies will design research to justify a pre-ordained policy or regulation rather than the policy or regulation being based on sound, peer reviewed research.

U.S. GEOLOGICAL SURVEY

The U.S. Geological Survey (USGS) is a premier scientific agency involved in research and data collection programs that are of critical assistance to not only the private sector, but also to the federal and state governments and to local communities.

Federal investments in geoscience research and information have for decades paid enormous dividends, and the rationale for continued support of geosciences remains strong. For example, there is a demonstrated need for an integrated national effort to provide information about natural resources and geologic hazards. The Geologic and Groundwater Divisions of the USGS provide high quality and scientifically reliable information that is essential to the United States and its citizens, in particular, in the areas of economic health and national security. The USGS addresses development of natural resources, prepares geologic maps that are extremely useful to both the public and private sectors, in addition to maintaining healthy water standards.

In addition, it is important that the data on mining activities that was transferred from the BOM be maintained. The BOM was the only source for much of the statistical information on mining and minerals commodities and the NMA supports the continuation of these data collection and dissemination activities after transfer of the functions to the USGS. This activity is quite different from other USGS activities and NMA is concerned that USGS will attempt to eliminate or reduce these important functions. The data is very important as it forms the basis for informed policy decisions by government and it is also used by industry, non-governmental organizations and by academia and educators.

OFFICE OF SURFACE MINING

The NMA continues to support a reduction in those portions of the Regulation and Technology Appropriation for the Office of Surface Mining (OSM) to reflect the agency's reduced role in the wake of the maturation of approved state surface mining programs and to eliminate federal duplication of state responsibilities under the Surface Mining and Control Act of 1977 (SMCRA) particularly dual inspections and other enforcement activities already undertaken by the states. This direction is consistent with language contained in the House Interior Appropriations Bill Report for Fiscal Year 1996 on page 42 which notes that 97 percent of coal production occurs in primacy states. Further, a reduction in this area is consistent with the recommendations of the Vice President's Task Force on Reinventing Government which suggests the OSM close and downsize field offices and adjust staffing levels in view of the declining federal role. The necessary functions of field offices not already assumed by the states can be accomplished by OSM regional offices that were created as part of the agency's reorganization in 1994. State program grants, technical information processing systems, training of state personnel, review of state program amendments and electronic permitting activities should continue.

With respect to Title IV (Abandoned Mine Land) programs, NMA supports an increase in the state reclamation program grants particularly in view of the Fund's $1 billion surplus financed by the coal industry through the Abandoned Mine Land tax paid by the industry on each ton of coal produced. By reducing Title IV administrative costs at the federal level, additional funding could be made available to the states for reclamation of lands mined before the implementation of SMCRA. The states are best qualified to determine what their AML reclamation needs are, and grant money should be available to them absent unnecessary federal red tape.

BUREAU OF LAND MANAGEMENT AND FOREST SERVICE

National Mining Association (NMA) members are engaged in extensive exploration for and development of minerals on public lands. These lands are a cornerstone of the nation's mining industry. The NMA is concerned that the Bureau of Land Management (BLM) and Forest Service lack sufficient qualified personnel expertise and funding to be able to conduct timely mine permitting processes. This is resulting in major economic and social impacts.

NMA members are committed to responsible activities on public lands. They are also committed to working closely with the BLM and Forest Service in the planning stage to assure that mining projects meet environmental standards and objectives. To do otherwise would lead to increased costs both to industry and the federal government.

BLM and the Forest Service must have highly qualified and trained personnel with expertise in mineral exploration, development and production techniques to perform this "up front" work. The NMA urges the Committee to provide adequate funding so that processing of mine operating plans, including National Environmental Policy Act compliance, can proceed in a timely manner. This would go far to alleviate a problem of major significance.

Mining operations on public land generate taxes and employment and in many cases are the primary source of employment in some communities. Delays in approval for conduct of minerals activity has a negative effect. An adequate minerals budget will help assure timely, up front and cooperative efforts between the land management agencies and the mining industry.

THURSDAY, MARCH 7, 1996.

NEA

WITNESS

MELANIE MOYER

Mr. REGULA. Melanie, we're happy to welcome you. Mr. Bevill is going to introduce you to the subcommittee. Mr. Bevill.

Mr. BEVILL. Thank you, Mr. Chairman. I appreciate you giving us the time here. I want to introduce a constituent that I am very, very proud of, and all of my 4th Congressional District is proud of her. She's a high school senior and extremely accomplished. She's a dancer, a singer, and she wrote one of the most beautiful letters I have received—and that's a pretty big statement, as you know Mr. Chairman, when we receive thousands of letters—about the National Endowment for the Arts and just what it did for her and the impact that it had on her, and I'm sure that there would be many thousands of students throughout the United States that would have had the same impact.

I guess I'd better smile for this. [Laughter.]

So, I'd like to introduce that letter into the record, Mr. Chairman. She has told about how this program has—the National Endowment for the Arts—has helped bring the theater to hundreds of the underprivileged children throughout Alabama. And many of them saw Melanie perform as Wendy in Peter Pan because of the NEA's support for the theater program. I deeply appreciate you giving me the opportunity to present Melanie to you. And I won't take the rest of your time, Melanie, and I yield to you right now.

[The information follows:]

Tom Bevill

101 Eighth Avenue S.E.
Cullman, Al 35055
August 4, 1995

The Honorable Tom Bevill
United States House of Representatives
2302 Rayburn House Office Building
Washington, D.C. 20510

Dear Representative Bevill:

My name is Melanie Moyer, and I am a seventeen–year old Senior at Cullman High School. I am the daughter of Donnie and Dianne Moyer, the granddaughter of Bert Morgan and the late Mary Morgan, and the granddaughter of Dora B. Moyer and the late R.B. Moyer. When I was little, my mom put me in dance classes to correct my turned-in feet. I continue to take dance today because it thrills me and I cannot imagine my life without dancing. When I was in kindergarten, my mom took me to an open audition at the Cullman Civic Center for the musical Oliver! I made the audition along with my mom. Together we performed at Wallace Sate Communiuty College. This was the beginning of my love for the theatre and for the arts. Twelve years later I continue to perform and to learn about the arts each day. I plan to pursue a career in the theatre and to major in it in college.

There is a purpose in my telling you this story. Recently I was cast as Wendy in the musical Peter Pan in Birmingham's Summerfest. I cannot tell you how much I learned and grew from that magical experience. I have never experienced anything so wonderful in my whole life. Following the opening night show, I was ecstatic. People were greeting me, and little kids were asking for "Wendy's" autograph. Others only wanted hugs from Wendy. Hundreds of underprivileged children came to see their first theatre performance ever. A man who had watched me "grow up" on the Summerfest stage came to me and congratulated me on my performance. He then said, "It's too bad the government wants to cut the National Endowment for the Arts. If only they could see this . . . " All of a sudden my spirits plummeted. I felt as if I had been robbed of my most prized possession. Each year Birmingham Summerfest struggles to remain alive, and each year I eagerly wait to hear if Summerfest will perform another season. The only obstacle is money. The Cullman Community Theatre has already gone under. The theatre group with whom I first performed no longer exists. The only way that theatre in America can survive is if someone supports it. That someone is the government. The National Endowment for the Arts provides a great deal of money for the arts, but its accomplishments have no price tag. There is an old saying that "Music is the universal language." The same shows that run on Broadway in New York run in London, in Tokyo, in Moscow, and in Sidney. Art is the only way the world is ever truly in harmony. I know that supporting the arts brings the world closer together than giving money to build new weapons ever will.

I am asking you to support the National Endowment for the Arts in any way that you can. I know that I am young, but would like the chance to share with the Congress how much theatre has meant in my life. I want the opportunity to talk to each member and tell them what it feels like when the curtain rises and the orchestra begins to play. I want them to know what it feels like to cry from the sheer joy of performing and to cry because a show is coming to a close. I want them to know how my life has been touched by people all over the United States because of theatre. Please write or call me, and I will be on the next plane to Washington. This really means a lot to me, and I am sincere in my plea. Please tell me how I can address the Congress of the United States of America. Thank you for your time, help, and support.

Sincerely,

Melanie Moyer

Melanie Moyer

Melanie Moyer
101 Eighth Avenue S.E.
Cullman, AL 35055
(205) 734-2231

Ms. MOYER. Thank you.

Mr. REGULA. Thank you, Mr. Bevill, and Mr. Bunn is going to take the chair for the balance of the morning. Since he's the new member of the committee, I think that we ought to give him the positive break of getting to listen to Melanie's testimony.

Mr. BEVILL. And we need to get all of the work out of him that we can. He also serves with me on my subcommittee, and so he's very capable and will do a great job. We want to take advantage of it.

Mr. REGULA. Aren't you glad you came? [Laughter.]

Ms. MOYER. Thank you very much for letting me come and testify this morning. I am here speaking to something that is very important in my heart, and I am here testifying on behalf of all the youth in the United States of America.

In July of 1995, I had the magical and rewarding experience of playing the role of Wendy in Birmingham's summer fest production of Peter Pan. At one of the performances hundreds of underprivileged children came and saw the performance. After the performance I went out and greeted the children. They wanted only autographs and hugs from Wendy. I cannot tell you how much they sparkled, and they were so enthusiastic about seeing their first live theater performance. A man who had seen me grow up in the theater came up to me and said, "It's too bad the government wants to cut the National Endowment for the Arts. If only they could see this."

My soaring spirits plummeted as I began to realize how much the National Endowment for the Arts did for all the arts programs throughout the United States. I felt as if I had been robbed my most prized possession. Knowing that I needed to act, I wrote my Congressman, Tom Bevill, and because he believed in me, I am here and privileged to testify for you today.

I am not here to quote facts and figures about the National Endowment for the Arts, but rather I am here to speak directly from the bottom of my heart. Do you have any idea what it feels like to be standing backstage listening to the overture before a performance? Do you have any idea what it feels like to cry before a performance because you are so excited that it is about to come and to cry because you know it is coming to a close? I feel blessed having known the friends that I have met throughout the United States. I have been privileged to work with a director from New York, from Los Angeles, and I have had the privilege of meeting people such as Lee Meriwether and Ray and Jodi Benson.

One of the most valuable assets that the arts provides today is the self-esteem it builds in young people. For many children, the arts provide the key for encouragement for their future. I have seen this in one of my best friends. She works in an ensemble with me in Birmingham. We have been able to perform as dancers and singers throughout the State of Alabama. The only problem with my friend is that she dances on two artificial limbs, but the arts have given her the courage to overcome her disability.

The arts are the universal language for the world. I am not so idealistic to say that the arts can solve all the problems the world holds today, but I am realistic enough to understand that this positive instrument is not being used to its fullest potential. Providing money for the arts promotes world peace among the cultures of the world better than building—using monies to build weapons ever will.

This past fall, the summer fest junior ensemble performed as good will ambassadors for a group of Russians visiting our country. Although they could not speak or understand a word of English, they thoroughly enjoyed our performance as they gave us a standing ovation and clinked the side of their glasses. That's their way of showing their approval, enthusiasm, and love for us.

The arts provide relief from the burdens of the world. Coming to see a theater performance, an opera, one leaves behind, even if only for a little while all that may be making their life difficult.

During the last seven months, I have tried to make Alabamians aware of how important supporting the National Endowment for the Arts are. Using support for the National Endowment for the Arts as my platform at the Alabama State Junior Miss Program, many people became involved in my endeavor. I talked to many elementary schools in Cullman. I sang and danced and told them how important the National Endowment for the Arts were. As a result of my efforts, many people throughout Alabama have written letters in support of the National Endowment for the Arts. There are over 300 letters in this package including a letter from Governor Fob James, including a letter from the Alabama Shakespeare Festival, the State arts council, and many students from all over the State of Alabama.

The youth of America have an opinion, too, and they do not want the arts to be cut. One of the children read, "Please don't destroy my dream." One of the girls wrote, "My participation in the arts has given me confidence and respect for myself. I have no need for drugs, alcohol, or promiscuity."

All great nations of the world support the arts. For this reason, in 1965, the Congress of the United States of America created the National Endowment for the Arts. The United States is a progressive Nation. We do not want to regress by cutting this valuable resource to its citizens.

I will say that there are some projects supported by the National Endowment for the Arts that I do not approve of, but I realize that there is much more positive that comes from the National Endowment for the Arts that far outweighs the negative.

You may say that the arts will be able to still provide this good without Federal funding. I disagree. The National Endowment for the Arts funding is vital to the continued growth of all the arts. The first theater that I ever performed, the Cullman Community Theater, no longer exists today because of the lack of funding.

During my trip to Europe last summer, I saw Starlight Express in London. I would like to share with you a line from the musical with you. "I am the starlight. I can achieve anything. If you draw on what you have within you, somewhere deep inside. I am the starlight. I can achieve anything. Needn't beg the world to turn around and help you if you draw on what you have within you."

I hope that you will continue to fund the National Endowment for the Arts so that people will always be able to share their starlight with others in all cultures. I found my starlight performing, and I hope you have found your starlight as well.

Thank you for your time and for allowing me the opportunity to come and speak before you today. I ask you to think not of the facts and figures of the National Endowment for the Arts but the enthusiasm and excitement it provides for the youth of America and for all generations to come. The arts are not only important for now, but for generations of tomorrow. The arts shape who we are and provide a common ground for all of mankind.

Thank you.

Mr. BUNN [presiding]. Thank you very much for taking the time to come and share with us.

Mr. BEVILL. Very good. Thank you, Mr. Chairman, and I'm sure her prepared statement is already a part of the record. Thank you very much.

[The statement of Ms. Moyer follows:]

MELANIE MOYER
Eighteen Year Old Senior from Cullman High School
101 Eighth Avenue SE
Cullman, Alabama 35055
(205) 734-2231

I am here today to testify to the House Appropriations Subcommittee on the Interior and Related Agencies. Speaking in support of funding the National Endowment for the Arts will be my topic. I represent no particular agency, but I am here on behalf of the youth of the United States of America.

When I was a little girl my mother put me in dance classes to correct my turned in feet. I continue to take dance today because it thrills me and I cannot imagine my life without dancing. When I was in kindergarten, my mom took me to an open audition at the Cullman Civic Center for the musical Oliver! I was cast along with my mother to perform. This was the beginning of my love for the theatre and for the arts. Twelve years later I continue to perform and to learn about the arts each day. I plan to pursue a career in the theatre and international relations after I complete a major in these fields at Duke University.

There is a purpose in telling you this story. In July 1995 I had the magical and rewarding experience of playing the role of Wendy in Birmingham, Alabama Summerfest's production of Peter Pan. Following the opening night show, I was ecstatic. People were greeting me, and little children were asking for "Wendy's" autograph while others only wanted hugs from Wendy. Several hundred underprivileged children were there to experience their first theatre performance. As I visited with these children, I was touched by their enthusiasm and their curiosity. A gentleman who had watched me grow up on the Summerfest stage, witnessed my interaction with the children, and he said, "It is too bad the government wants to cut the National Endowment for the Arts. If only they could see this..." My soaring spirits plummeted. I felt as if I had been robbed of my most prized possession. Each year Birmingham Summerfest struggles to remain alive, and each year I wait to hear if Summerfest will perform another season. Its only obstacle is money. The Cullman Community Theatre, the group with which I first performed, no longer exists because of lack of money. The only way that theatre in America can survive is if someone supports it. That someone is the government.

I began to contemplate what our great country would be without the National Endowment for the Arts. The National Endowment for the Arts provides a great deal of money for the arts, but its accomplishments have no price tag. Knowing I needed to act, I wrote our United States Congressmen from Alabama and asked for their support of the National Endowment for the Arts. I also asked to address the United States Congress to share with them my love for the arts and the education the arts have been in my life. Because Congressman Tom Bevill believed in me, I am privileged to speak with you today.

I am not here to quote facts and figures about the National Endowment for the Arts, I am here to share with you from my heart. Do you have any idea how it feels to stand backstage as the orchestra begins the overture? You feel proud knowing you have worked hard and you anticipate bringing joy to your audience. You fight tears from the sheer excitement of performing and again from sadness when a show comes to a close. You feel blessed from the friends you have made. My life has been touched by individuals from across the United States including some famous individuals such as Lee Meriwether and Ray and Jodi Benson. The famous and the not so famous are all gifts in my life, and many have been an inspiration to me. They have encouraged me not only to be my best self on the stage but in my life as well. The theatre has taught me discipline that has affected how I approach everything I work to accomplish. My theatre background makes it possible for me to stand before you today.

One of the most valuable assets of the arts is the self esteem they build in young people. For many children, the arts are the key providing the encouragement they need to become productive citizens. I have two friends for which this has been true. One sixteen year old named Neil wanted to drop out of school. Because he has developed a love for the theatre, he is now persevering to stay in school to achieve his goal in musical theatre. Another friend, Katie, and I are members of the Birmingham Summerfest Performing Junior Ensemble. This group of thirty young people was chosen from a field of over one hundred. We had to prove ourselves in voice and dance. Katie is a true asset to our group, and she is amazing when you consider that Katie performs on two artificial legs. The arts have helped Katie overcome her disability.

The arts are the universal language among the diverse cultures of our world. Today, we are putting behind us a time of walls between people, and we are moving ahead by building bridges. The arts are the perfect bridge for building peaceful relationships among nations. I am not so idealistic to think that the arts can solve all the worlds problems, but I am realistic enough to know we are not using this positive instrument of the arts to its fullest advantage. Even when people speak different languages and practice different customs, they still come together when they dance and perform music. When people share the joy the arts provide, they are more willing to work together on bigger issues.

This past fall the Summerfest Ensemble performed as goodwill ambassadors for a group of several hundred visiting Russians. Although they could not speak or understand English, we broke the communications barrier with our music. It was incredible the response they gave us as they hit the side of their glasses with their spoons. This was their way of applauding. After the performance, we greeted our guest. We could communicate with handshakes and hugs because of the joy we shared from the arts.

The United States prides itself on educating our people. The arts are a tremendous source of education. For example, the musical Les Miserables enjoyed by audiences around the world, has an incredible message for all mankind. The character, Jean Valjean, is an inspiration of perseverance in life, no matter what obstacles one may face. His strength drawn from God helps him to nurture and protect those he loves. We are all touched by his words, "To love another person is to see the face of God."

The arts enter all aspects of our lives. This past weekend, I was honored to serve as Rector or leader of a "Happening." This is an Episcopal sponsored weekend for teens to explore their faith. During the weekend, I realized we were reaching young people spiritually through the arts. We participated in singing, dancing, acting, and drawing.

The arts provide relief from the burdens of our world. Coming to see a theatre performance or hear a symphony play, one leaves behind, even if only for a little while, all that may be making life difficult. Often the inspiration received from the performance rejuvenates the individual to go back into the real world in a more positive frame of mind.

During the last seven months, I have tried to make Alabamians aware of the importance of the National Endowment for the Arts and of its funding. After using "Supporting the National Endowment for the Arts" as my platform at the Alabama's Junior Miss program, many people have been eager to help me with my endeavor. They have passed on to others what I have shared. I have gone into the elementary schools to sing and to talk to them about the National Endowment for the Arts and all the good it accomplishes. Even as young as these children are, they can relate to how much they love the Birmingham Children's Theatre productions that come to their schools each year. The National Endowment for the Arts helps make this program possible. I have written letters to teachers at high schools and middle schools concerning the National Endowment for the Arts and its funding. I requested they share with their students this valuable program.

As a result of my efforts, I bring to you letters from across Alabama, from all walks of life, and all ages. These letters are all unique, but they all have in common their plea-Please do not cut the funding for the National Endowment for the Arts! I have a letter from Governor Fob James, the Alabama Shakespeare Festival, The Alabama State Council of the Arts, The Carver Creative and Performing Arts Center, The Montgomery Museum of Fine Arts, Alabama's Junior Miss, Summer Newman, and the Alabama Junior Miss Board and Scholarship Foundation. Probably the most impressive letters I have for you are those of students from schools across Alabama. These young people have expressed as I have, what the arts have meant in their lives. I want to share one particular letter. A student from the Alabama School of Fine Arts in Birmingham writes, "While many teenagers are cited by the media as being 'bad,' most of my friends who participate in the arts are too busy to become involved in unsavory activities. Also, my participation in the arts has given me confidence and respect for myself. With that respect, I have no need for drugs, alcohol or promiscuity."

All great nations of the world support the arts. For this reason, in 1965 the Congress of the United States of America created the National Endowment for the Arts stating, "The encouragement and support of the national progress and scholarship in the humanities and the arts, while primarily a matter for private and local initiative, are also matters of concern in the Federal Government." The United States is a progressive nation. We do not want to regress by cutting this valuable resource to its citizens.

I will say there are some projects supported by the National Endowment for the Arts that I do not approve of such as those of pornographic nature. I realize there is much more positive from the National Endowment for the Arts that far outweighs the negative. Please do not cut the funding due to these negative projects.

You may say that all the good the arts provide can still exist without federal funding. I disagree. The National Endowment for the Arts funding is vital to the continued growth of the arts. Of all the money spent by the United States Government, why not invest in the arts- the returns are tremendous.

Last summer during Peter Pan, I found my "Never, Never Land." It comes from within me and allows me to accomplish anything. The stage is my "Never, Never Land," and many others find theirs here also. During my trip to Europe, I saw Starlight Express in London. I would like to share a line from the musical with you.

> "I am the Starlight, I can achieve anything. If you draw on what you have within you. Somewhere deep inside. I am the Starlight, I can see it through. Needn't beg the world to turn around and help you, if you draw on what you have inside you."
> from: Starlight Express by Andrew Lloyd Webber

I hope you will continue to fund the National Endowment for the Arts so that people will always be able share his or her "Starlight" with all cultures. I have found my "Starlight," and I hope each of you have found your "Starlight" as well. Thank you for your time and for the opportunity you have given me to speak. The arts are important not only now but for the generations of tomorrow. The arts shape who we are and provide a common ground for all mankind.

Melanie Moyer

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

ELIAS (LEE) H. CAMARA, PRESIDENT, M–C POWER CORPORATION

Mr. BUNN. Next is M–C Power, Elias Camara.

Mr. BEVILL. Mr. Chairman, I realize that you can't put all these in the record, but if we can't leave them available for anyone who would like to read these, we'd like to do that.

Mr. BUNN. Good morning and welcome.

Mr. CAMARA. Good morning. Thank you very much for this opportunity.

Mr. Chairman, members of the subcommittee, my name is Lee Camara. I am the president of M–C Power Corporation of Burr Ridge, Illinois. We are a small business founded in 1987 for the sole purpose of commercializing the IMHEX molten carbonate fuel cell. We believe that it will play a major role in meeting the growing needs for clean, efficient dispersed power generation both here and abroad. We wish to thank this subcommittee for the support provided to the molten carbonate fuel cells program in Fiscal Year 1996 especially for the additional $8 million.

For Fiscal Year 1997, M–C Power is requesting that this subcommittee supports a level of DOE molten carbonate fuel cell funding of $40 million. To continue to support equally the two existing contractors, thus maintaining the competition and pace of development. This request of $20 million for M–C Power still lags behind the overall funding pace agreed to in our multi-year contract signed with DOE in December of 1984 which represented the most cost effective approach to develop M–C Powers molten carbonate fuel cell through the remaining stages of product development, testing, and manufacturing cost reduction necessary to position us for commercial competition.

Our premier commercialization team composed of a school of services of Houston, Texas, Bechtel Corporation of San Francisco, California, and the Institute of Gas Technology of Des Plains, Illinois possesses all of the required expertise and facilities to bring this technology to the market place before competition from Japan, Korea, China and Europe. Our team, with your help, continues to make significant progress.

First, during Fiscal Years 1994 and 1995, M–C Power, and esteemed members designed, fabricated, and commissioned the first full scale molten carbonate fuel cell power plant test in the world. At least a 150-kilowatt unit cited at Union Oil in California in Grayer, California, was supported by DOE and seven other organizations. As is typical in many first tests of a new technology, the power plant did not meet performance expectation in spite of a successful commissioning of the fuel cell stock power plant in Illinois. However, significant expertise and know how were acquired in such critical areas as full size stocking, factoring, assembling, commissioning, transportation and installation, balance of plant packaging, transportation and installation, and power plant start up and operation.

The lessons learned at UNOCAL are being applied to the construction and installation of a second fully integrated 250 kilowatt power plant at Naval Air Station Miramar in San Diego, California. The Skidmont power plant will verify our packaging techniques, and then we'll trade the higher frequency of our technology.

All power plant equipment, with the exception of the fuel cell stock which will be delivered in August, is now at Miramar, and contractors are piping and wiring the equipment. The power plant is connected to Miramar's selector grid, and the heat from the plant will be recovered and delivered to a station's steam supply systems. It will begin operating in the fall of this year.

And I would like to show you one picture of where we are right now. That's the power plant there under construction, and this is a computer generated picture of what it will look like when it is completed in a few months.

[Pictures.]

Now, the operation of this power plant will provide much needed design and operational data under our current contract with DOE which will culminate in the construction and operation of a one megawatt prototype plant in 1999 to prove the readiness of our technology. The molten carbonate fuel cell technology will meet our cost goals and is now being proven in the laboratories. In Fiscal Years 1996 and 1997, this technology will be scaled up to full size and tested in 200 kilowatt and 250 kilowatt stocks by M–C Power prior to incorporation into the one megawatt prototype plant.

M–C Power is developing an efficient, clean power generation technology for a strong market. Molten carbonate fuel cells will be the technology of the 21st century for a small, less than ten megawatts, distributed power generation equipment, and we ask the subcommittee to provide the Federal support necessary for us to continue our progress at the rate proposed in our contract with the DOE.

Again, thanks very much for this opportunity, and I will be happy to answer any questions that you may have.

Mr. BUNN. Thank you very much.

[The statement of Mr. Camara follows:]

TESTIMONY OF ELIAS H. CÁMARA, President

M-C Power Corporation
Subcommittee on Interior
House Committee on Appropriations
March 7, 1996

Molten carbonate fuel cells are an extremely clean and efficient technology for directly converting natural gas, or any other source of methane or hydrogen, into electric power and usable heat. All fuel cells generate electricity from the fuel and oxidant (air) through a silent electrochemical process. Consequently, fuel cells offer significant advantages over conventional generation technologies in efficiency and lower emissions.

Fuel cells also have the significant advantages of modularity and efficiencies that are independent of size. Consequently, they can be built in small, modular, standardized units at a factory and delivered to cogeneration and distributed generation sites where power and/or heat are needed. Because of their insignificant emissions those sites can be anywhere, even in urban settings or other locations with sensitive air quality requirements.

There are several types of fuel cells along with our molten carbonate approach. Although each of these types is based on the same electrochemical principles, we are not simply repetitious competitors. Each type has certain advantages over others in specific markets, based on characteristics such as cost, size, temperature, performance and others. Molten carbonate fuel cells are the most efficient, thus offering the lowest operating cost, and offer the lowest emissions of all fuel cells under development today for stationary applications. Molten carbonate fuel cells are ideal for distributed generation where, along with their electricity production, their operation at 1200° F provides high-quality heat for additional electric power or industrial processes. On the other hand, that same operating temperature inhibits their application in the transportation market sector.

The Department of Energy's molten carbonate fuel cell program is currently supporting two competing developers, M-C Power and the Energy Research Corporation (ERC). We take significantly different approaches to design fundamentals such as stack feed gases manifolding and conversion of natural gas to a hydrogen stream. M-C Power's IMHEX® technology benefits from internal gas manifolding and external natural gas reforming.

The DOE program, to date, has maintained both companies relatively parallel in our development processes, thus creating beneficial competition for first access to market. It also helps maintain the leadership of the United States in this advanced technology and prepares the two American developers for competition in world markets with Japanese, Korean, Chinese and European companies also developing molten carbonate fuel cell power plants with significant financial assistance from their respective governments.

M-C Power Corporation is a small business concern founded in 1987. Our sole mission is to bring the very promising IMHEX® molten carbonate fuel cell technology to the market place. Because we do not have a saleable product yet, and are not a subsidiary of a profit-making company, our progress depends on federal funding and external cost-sharing.

M-C Power's molten carbonate fuel cells are assembled into a single unit (the stack) for packaging in a skid-mounted power plant for delivery to the customer. Our role is specifically the development and manufacturing of the fuel cell stack. We have enrolled the support of a very strong team of subcontractors that includes the Bechtel Corporation for power plant design and engineering; Stewart & Stevenson Services, Inc. for assembling and packaging the entire plant as a skid-mounted unit for delivery and installation; and the Institute of Gas Technology for advancing electrochemical technology. Stewart & Stevenson will also serve as the pimary marketer of our commercial plants, lending their worldwide marketing sales, distribution and services experience and network to our efforts It is a very strong team because it relies on the best capabilities of its individual members, each a leader in its field.

We also work closely with the Alliance to Commercialize Carbonate Technology (ACCT). ACCT and its dues paying members serve as the conduit for market-oriented input from prospective customers, and for the interaction of M-C Power with the utilities and industries represented to develop the product and their confidence in its value.

During 1994 and 1995, M-C Power and its team of subcontractors fabricated and commissioned the first full-scale molten carbonate fuel cell power plant test in the world. This 250 kW unit, sited at the Union Oil of California's (UNOCAL) Fred L. Hartley Research Center in Brea, California, was supported by the U.S. DOE, the Electric Power Research Institute, the Gas Research Institute, the South Coast Air Quality Management District, Southern California Edison, Southern California Gas, the State of Illinois and Union Oil of California. As is typical in many first tests of a new technology, the power plant test did not meet performance expectations in spite of the successful commissioning of the fuel cell stack at our plant in Burr Ridge, Illinois. However, significant experience and know-how were acquired in such critical areas as full-size stack manufacturing, assembling, commissioning, transportation, and installation; balance-of-plant packaging, transportation and installation; and power plant start-up and operation.

The "lessons-learned" at UNOCAL clearly indicated the importance of balance-of-plant design and equipment simplification. Minimizing the number of rotating devices in the plant is critical for successful commercialization and high plant reliability. The experiences gained at UNOCAL are being applied to the construction and installation of a second, fully integrated, 250 kW power plant at Naval Air Station (NAS) Miramar in San Diego, California. This integrated, skid-mounted power plant will verify our packaging techniques and demonstrate the high efficiency of our IMHEX® molten carbonate stack concept. All power plant equipment (reformer, inverter, skid-mounted balance-of-plant), with the exception of the stack, is now at NAS Miramar. Contractors are now piping and wiring the equipment. Process and control (PAC) testing, including our fully-computerized control system, will begin in April of this year, and we currently plan to ship the 250 kW fuel cell stack to the site in July. After final PAC testing, the plant is scheduled to begin operation in the fall. The power plant will be connected to NAS Miramar's electric grid and the heat will be recovered, in the form of steam, and delivered to the station's steam supply piping system. The test is scheduled to last until January, 1997. It will be very valuable to continue operation beyond this date; however, additional funds will be needed.

The NAS Miramar unit is a very exciting project that is receiving the support of the U.S. DOE in a 50%-50% cooperative agreement with the Gas Research Institute, San Diego Gas & Electric and M-C Power and its team members. The project also received some financial support from the Advanced Research Projects Agency of the U.S. Department of Defense and has been receiving great encouragement and cooperation from the U.S. Navy and its personnel at NAS Miramar.

The operation of this power plant will provide much needed design and operational data to our current contract with the U.S. DOE, which will culminate in the construction and operation of a 1 MW prototype plant in 1999 to prove the readiness of our technology. This 1 MW prototype plant incorporates only one rotating device in its design, a turbogenerator, following one of the important "lessons-learned" at UNOCAL. The molten carbonate fuel cell stack technology required to meet commercial objectives is now being proven in the laboratories at the Institute of Gas Technology. During FY 1996 and FY 1997, this technology will be scaled-up to full size and tested in 20-kW and 250-kW stacks by M-C Power prior to incorporation into the 1 MW prototype plant.

For FY 1997, M-C Power requests that this subcommittee supports a level of U.S. DOE Molten Carbonate Fuel Cell funding of $40 million to continue supporting equally the two existing contractors, thus maintaining the competition and pace of development. We recognize that our recommendation may exceed the U.S. DOE's request for FY 1997 for this line item and that it is 5% above the current FY 1996 level. We recognize as well that this subcommittee hopes to lower, rather than increase, federal spending. Our request of $20 million for M-C Power , however, still lags behind the overall funding pace agreed to in our multi-year contract signed with the U.S. DOE in December, 1994, which represented the most cost-effective approach to develop M-C Power's molten carbonate fuel cell through the remaining stages of product development, testing and manufacturing cost reduction necessary to position us for commercial competition.

M-C Power and its industrial supporters have provided significant cost-sharing to our contracts with the U.S. DOE. We have received $58 million from the U.S. DOE and provided $33 million of cost-sharing in the UNOCAL and Miramar projects. At the completion of our current contract, M-C Power will have provided over $33 million in private sector cost-sharing to the $71 million it will receive from the U.S. DOE. However, our primary private sector support, and our current primary future markets, are within the electric and natural gas industries. While the electric and gas industries have pledged strong cost-sharing to our program, the current uncertainties of deregulation in those industries would make it extremely difficult at this time to seek additional cost-sharing to maintain the current program pace if shortfalls in DOE funding continue. While those market changes will make future opportunities even greater for distributed power through the use of molten carbonate fuel cells, the temporary uncertainty regarding who will be the purchasers in those markets restricts our ability to target new cost-sharing or investment efforts.

Delays or uncertainties in the government's commitment to our efforts will cause additional negative impacts. Our cost-sharing partners expect timely progress in exchange for the contributions and commitments they have already made. They plan their needs for future power generation equipment on our market entry projections today.

M-C Power is developing an efficient, clean power generation technology for a strong market. Molten carbonate fuel cells will be the technology of the 21st century for small (< 10 MW) distributed power generation equipment and we ask this subcommittee to provide the federal support necessary for us to continue our progress at the rate proposed in our contract with DOE.

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

TERRY SINGER, EXECUTIVE DIRECTOR, NATIONAL ASSOCIATION OF ENERGY SERVICE COMPANIES

Mr. BUNN. Terry Singer from the National Association of Energy Service Companies. Welcome.

Ms. SINGER. As executive director of the National Association of Energy Service Companies, which is a trade association of energy service companies and their utility and manufacturing, I appreciate the opportunity to present the following comments.

The United States government is the single largest energy consumer in the world. Despite efforts by the Congress and the executive branch to mandate reductions in energy use in 1994, the Federal Government still spent about $3.8 billion alone for the energy it used in the buildings that it owns and leases. These annual energy costs can be reduced by an additional $1 billion per year through performance based energy efficiency improvements by the private sector. Through the use of energy service performance, private sector investments can be used to bring about the more efficient use of energy in Federal facilities at no added cost to the Federal budget or American taxpayers.

For example, at Hill Air Force Base in Utah, an energy service company called CES/Way is installing a 20-year, $19 million privately-financed, comprehensive energy efficiency project that will be paid for entirely out of energy savings. This project will save United States taxpayers $50 million in energy costs over the life of the project.

Similarly, energy service company EUA Cogenex has completed a comprehensive lighting retrofit of DOE's Forrestal Building saving United States taxpayers $2.8 million in energy costs over the seven year contract term.

At Fort Polk in Louisiana, energy service company, Coenergy Group, is reducing energy costs by an anticipated 35 to 40 percent on a project that is also expected to pump approximately $25 million into Fort Polk's local economy over the next 20 years through the use of local contractors.

These energy cost savings and related benefits could be multiplied dramatically at Federal facilities. Until recently, Federal procurement barriers and a shortage of trained Federal energy managers have constrained the widespread use of energy savings performance contracting. This is changing, however. Over the past three years, DOE has demonstrated leadership and initiative in four critical areas. One, in technical guidance and training of Federal energy managers and contract officers. Two, in the formulation of standardized guidelines and procedures for quantifying the energy savings resulting from the installation of energy efficiency measures. Three, in the finalization of the energy savings performance contracting regulations necessary to undertake private investments in Federal facilities. And, four, in providing information about the elements of the responsible delivery and implementation of cost effective energy efficiency projects to public and private sector end users.

Given these activities, NAESCO supports the budgetary levels being sought by DOE for its Federal energy management activities. A decision by Congress to underfund these programs would deny the Federal Government the long term budget gains that can be achieved through private energy efficiency investments in Federal buildings. This potential was recognized by Congress last year in the conference report on the Fiscal Year 1996 Interior Appropriations Act which encouraged Federal agencies to make greater use of partnerships with private sector energy service companies through the use of energy savings performance contracts.

NAESCO thanks you for your support and urges you to reaffirm your support this year. NAESCO also urges the committee to require agencies to comply with the reporting requirements in the 1992 Energy Policy Act; for example, by inclusion of the so-called Bingaman amendment in your bill.

In closing, I would like to especially thank Christine Irvin, the Assistant Secretary for Energy Efficiency and Renewable Energy at DOE and her extremely capable staff who are working so hard to translate policy into practice in this area.

Mr. BUNN. Thank you very much.

[The statement of Ms. Singer follows:]

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National Association of Energy Service Companies

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March 7, 1996

FULL STATEMENT
THE NATIONAL ASSOCIATION OF ENERGY SERVICE COMPANIES
before the
HOUSE SUBCOMMITTEE ON INTERIOR APPROPRIATIONS

The National Association of Energy Service Companies (NAESCO), a trade association of energy service companies (ESCOs) and their utility and manufacturing allies, appreciates the opportunity to present the following testimony.

OVERVIEW

The U.S. Federal government is the single largest energy consumer in the world. In 1994, the Federal government spent about $3.8 billion for the energy it used in the buildings that it owns and leases. However, these annual energy costs can be reduced by an additional $1 billion through performance based energy efficiency improvements financed by the private sector. Through the use of energy service performance contracts (ESPCs), private sector investments can be used to bring about the more efficient use of energy in Federal facilities at no added cost to the Federal budget, or American taxpayers.

Recognition of these potential budget and energy savings began with enactment of the 1985 Omnibus Budget Reconciliation Act. A decade later and three years since enactment of the bipartisan 1992 Energy Policy Act (EPAct), American taxpayers are in the position only to begin to capture the full benefits of these energy and budget savings.

Because of the initiatives undertaken by the Department of Energy's (DOE) Federal Energy Management Program (FEMP) during the last year, including its Energy Savings Performance Contracting (ESPC) initiatives, the necessary procurement infrastructure now is in place for the Federal government to begin to enter into partnership with the private sector to provide for the installation of commercially available energy efficiency technologies in Federal buildings. To ensure that Federal agencies receive the highest quality and most competitive price for energy efficiency services, continuing efforts are needed by DOE to ensure that all qualified providers of energy services receive the opportunity to compete for projects. Moreover, DOE should be encouraged to broaden the scope of current contracting approaches like area-wide solicitations provided that such initiatives enable equal participation by all qualified providers and are not limited to specific types of providers at the expense of other qualified providers.

The enormous potential for reaping the benefits of energy efficiency investments throughout our economy have been recognized by the private sector through such voluntary programs as the DOE Rebuild America initiative. However, a comparable commitment now is needed by the Federal sector on behalf of American taxpayers.

For these reasons, NAESCO supports the budgetary levels being sought by the DOE for its federal energy management activities. NAESCO believes that these appropriation levels are needed to create the necessary public-private energy conservation partnership to capture the $1 billion in annual energy savings achievable through greater use of ESPCs. A decision by the Congress to under fund these programs would deny the Federal government the long-term budget gains that can be achieved through private energy efficiency investments in Federal buildings.

POLICY AND PROGRAM INITIATIVES

The Congress has recognized the efficient use of available energy supplies to be a priority component of the United States' national energy strategy. In 1992, targets for the reduction of the Federal government's energy use were established in EPAct. Federal agencies were authorized to enter into energy savings performance contracts (ESPCs) with private companies to achieve those targets. In Executive Order 12902, the President reinforced the Congressional mandate to Federal agencies to implement the widespread use of energy efficiency by leveraging private funds through ESPCs.

Until recently, Federal procurement barriers and a shortage of trained Federal energy managers with the knowledge to undertake ESPCs contracts have constrained the widespread use of such contracting procedures to upgrade the energy efficiency of Federal buildings. Therefore, only a very small number of private-sector financed energy efficiency upgrades have been completed in Federal facilities. This is changing, however.

Over the past three years, DOE has demonstrated leadership and initiative in four critical areas: (1) in technical guidance and training of Federal energy managers and contract officers, (2) in the formulation of standardized guidelines and procedures for quantifying the energy savings resulting from the installation of energy efficiency measures, (3) in the finalization of the energy savings performance contracting regulations necessary to undertake private investments in Federal facilities, and (4) in providing information about the elements of the responsible delivery and implementation of cost effective energy efficiency projects to private and public sector end users.

Other programs available to finance energy savings projects in Federal buildings include DOE grants from the Federal Energy Efficiency Fund to other Federal agencies to implement energy efficiency projects. Through the DOE Energy Saver Partnerships Program, private sector experience is made available to federal energy managers. Through DOE's Federal Energy Management Program, training is being provided for the over 3,000 Federal energy managers and contracting officers.

Given these developments, NAESCO supports the budgetary levels being sought by the DOE for these initiatives. NAESCO believes that these levels of budgetary support are needed to create the necessary public-private energy efficiency partnership. Furthermore, these programs are more than self-funding since, according to the DOE, the energy cost savings are about $3 for every $1 invested.

HOW ENERGY SAVINGS PERFORMANCE CONTRACTS WORK IN FEDERAL FACILITIES

Cost savings can be provided by energy service companies (ESCOs), who can finance and install energy efficiency measures for energy users. ESCO's services include the installation of energy efficient lighting, motors, HVAC and other energy conservation measures in their customers' facilities at no upfront investment cost to a customer such as the Federal Government. The owners or occupants of such buildings benefit from reduced energy costs, while enjoying an upgraded facility. As an added benefit, existing utility generation capacity is freed up so that it can be sold to new customers, thus avoiding investments in new generating capacity.

Where these efficiency investments are undertaken by ESCOs through energy savings performance contracts, energy consumption and cost reductions are measured continuously and reported monthly, thus ensuring that energy consumption and cost reductions are real. Under an energy savings performance contract, the investment in energy efficient equipment can be financed entirely by private, non-government ESCOs who are repaid out of a portion of the customer's savings over the life of a contract, up to 25 years.

Where a utility demand side management program is in place, the utility incentive payment also is applied to buy down the capital cost of the project. Also, ESPC contracts usually provide for the maintenance of the conservation measures by the ESCO at no additional cost to the customer, since the maintenance costs are factored into the overall project's cost. Unfortunately, the Federal Government is realizing only a small fraction of the energy cost savings available through such private energy conservation investments in Federal facilities.

ESCOs ARE RENOVATING THE PUBLIC AND PRIVATE U.S. BUILDING STOCK

Energy services in the United States are expanding in breadth as a result of increasingly open competition now taking place among all the providers of such services as a result of the restructuring of the electric utility industry. Electric and gas utilities are moving away from their traditional monopoly structure and cost of service regulation by expanding their range of services.

At the same time, private sector energy service companies (ESCOs) are both funding and installing energy efficiency retrofits themselves as well as entering into partnership with utilities. Through their combined efforts, we are producing one of the most energy efficient building stocks in the world.

An ESCO is typically a small to medium sized entrepreneurial company that produces numerous new jobs, not only within their company, but through the use of contractors and through the countless other firms involved, directly and indirectly, in supporting energy conservation projects.

For example, the ESCO industry has spawned a new group of firms that specialize in providing the hardware and software used in measuring energy savings. Also, our industry experience is that approximately one-third of the money invested in ESCO projects is applied to labor costs. Thus, out of the estimated $2 billion of installed projects to date, ESCOs have generated approximately $700 million in direct labor employment.

Investments by these private ESCOs in Federal facilities offer significant opportunities for the Federal Government to procure cost effective energy efficiency upgrades in its buildings while also benefiting from dollar savings. For example, at Hill Air Force Base in Utah, an energy service company called CES/WAY is installing a 20-year, $19 million privately financed comprehensive energy efficiency project that will be paid for entirely out of energy savings. This project will save Hill AFB 4.9 million kWh per year and will save U.S. taxpayers $50 million in energy costs over the life of the project. Similarly, EUA Cogenex has completed a comprehensive lighting retrofit of the DOE's Forrestal Building, saving U.S. taxpayers $2.8 million in energy costs over the seven-year contract term; savings that remain available in perpetuity once the contract term ends. At Fort Polk, Louisiana, Co-Energy Group is reducing energy costs by an anticipated 35% to 40%, on a project that also is expected to pump approximately $25 million into Fort Polk's local economy over the next 20 years through its use of local contractors. Thus at the same time that these energy service companies reduce operations and maiantenance costs, they provide an added stimulus to the U.S. economy as they support American manufacturing and stimulate job growth while enhancing the competitiveness of U.S. industry.

IF THE FEDERAL GOVERNMENT ACTS NOW, IT CAN REDUCE THE ENERGY COSTS BORNE BY AMERICAN TAXPAYERS.

Within the United States' economy, residential and commercial buildings consume one-third of all primary energy and 65 percent of all of the electricity we produce. By investing in energy efficiency, we can capture more than 25 percent of this energy for use elsewhere within our economy. If the same amount of capacity for energy production were to be provided from the construction of new electric power plants, it would require 80 1,000 mega-watt plants with their attendant environmental impacts and siting concerns. Through energy efficient improvements in existing buildings we can free up this existing energy supply for other purposes while creating 345,000 new jobs and reducing carbon emissions by 72 metric tons annually.

As NAESCO mentioned last year, a 1994 macroeconomic study demonstrates that by meeting a 2010 energy use reduction target of 30 percent, the U.S. will reduce annual electricity generation by 27 percent and decrease the need for the construction of new generating facilities by over 50 percent. U.S. electricity customers will enjoy an 18 percent overall reduction in their electricity bill (a savings of $50 billion), while electric sector emissions of carbon dioxide and oxides of nitrogen will be reduced by 33 percent and 12 percent respectively. These lower costs for energy, available through private energy efficiency investments, will enable U.S. consumers to increase their annual consumption of non-electricity goods and services by $45 billion. ("DSM and the Broader Economy," Edward Moscovitch, The Electricity Journal, May 1994.)

The energy management activities being conducted by Federal agencies throughout the government offer a win-win budget initiative for the Congress and the U.S. taxpayer, since they are designed to reduce the energy consumption and therefore the dollar cost of running Federal buildings. These savings can be achieved by upgrading those building through greater use of energy savings performance contracting with ESCOs. In the process, the Federal government can utilize the marketplace to stimulate the creation of an infrastructure capable of delivering energy efficiency improvements within state and local communities long after the Federal projects are completed.

Last year in the conference report on the fiscal year 1996 Interior Appropriations Act, the Congress recognized the potential Federal budget savings that are achievable through energy efficiency improvements in Federal buildings and supported greater use of partnerships with private sector energy service companies to capture those savings through the use of energy savings performance contracts. NAESCO thanks you. and urges you to do so again.

THURSDAY, MARCH 7, 1996.

NEA

WITNESSES

DEBRA BLOUNT, EDUCATION DIRECTOR, WASHINGTON OPERA
DEBORAH SCESA, TEACHER, FARMLAND ELEMENTARY SCHOOL
RACHEL ROBINSON, STUDENT

Mr. BUNN. Next is the American Arts Alliance. Debra Blount, Deborah Scesa, and Rachel Robinson.

Mr. YATES. Before they start, I think they—I've been on this committee for approximately 40 years, and in all that time I never saw witnesses as young or as charming as you. [Laughter.]

Ms. BLOUNT. Thank you.

Mr. Chairman and members of the committee, I am Debra Blount, the education director for the Washington Opera. I am pleased to appear on behalf of the American Arts Alliance membership of more than 2,600 performing, presenting and exhibiting organizations nationwide.

The Alliance strongly recommends an increase of the maximum amount of funding possible for the NEA in Fiscal Year 1997. Last year the agency received a deep and disproportionate cut of 40 percent, and we are convinced that the programs that we will discuss this morning will be eliminated if this trend continues.

One important but little recognized aspect of an arts organization's work is making the artistic experience available to everyone, especially our country's youth. We could not do this without the $126,500 the Washington Opera Company receives in NEA support. I would also like to submit the Alliance's statement for the record.

Now I would like to introduce Debby Scesa and Rachel Robinson, a teacher and student who participate in our Opera in the Schools Program.

Ms. SCESA. Good morning. I am Debby Scesa. It is my privilege to teach more than 500 young, enthusiastic students at Farmland Elementary in Rockville, Maryland. I am here with my students to share the impact that correcting original opera has on our academic program.

This Metropolitan Opera Guild project was started with funding from the National Endowment for the Arts. As a result, I attended a 10-day workshop last summer at Princeton University to learn how to bring opera to life for children. We have formed our own opera company among our fifth grade. We are La Clevique Kids Opera Company. Clevique is our new French word for clever and unique.

We are in every sense a microcosm of a major opera company. We took applications for all major positions, production manager, carpenters, electricians, writers, composers, costumers, and set design. Our original opera entitled Chatroom Virus will debut May 29 and 30 in our school cafeteria opera hall.

With creating original opera, my students have had the highly valuable opportunity to participate in and explore the many facets of this art form and integrate reading, writing and math in the process. In addition, the increase in personal growth, maturity, and self-esteem are both noteworthy and beneficial. These students are taking on the adult roles of their professional counterparts, and through a local partnership with the Washington Opera are shadowing and learning directly from these professionals. They are experiencing first hand the complexities of such a major project, and the strong contribution that teamwork and individual accountability make for a successful outcome. This project and these learning opportunities would not exist without funding from the National Endowment for the Arts.

I would like to introduce a performer from La Clevique Kids Opera Company, Rachel Robinson. Rachel is 10 years old.

Ms. ROBINSON. My name is Rachel Robinson. I am a performer in Chatroom Virus, an original opera created by my class. This means doing something totally new. I have never before been able to help create what I will perform.

Even though I am a performer, I help a lot with developing the theme and with writing the story. It is exciting to be making decisions with the other kids. This is our only chance to have adult jobs until we're adults.

The teacher is not in charge, we are. It makes me feel more confident knowing I am trusted to make my own decisions. Working with the other kids has taught me a lot about teamwork. We all have to depend on each other to make this project work. This has increased our respect for each other. If more schools could work on an opera project like ours, the students would be more excited about learning and would be better friends with each other.

You are all invited to the show.

[Singing.] [Laughter.] [Applause.]

Ms. SCESA. This is a project with the Metropolitan Opera Guild in New York.

Mr. YATES. When did this occur?

Ms. SCESA. In 1983.

Mr. YATES. And you have been in existence since 1983?

Ms. SCESA. The project began in 1983 and started spreading through this summer workshop to over 475 schools in the United States, now affecting each of those schools.

Mr. YATES. And is this the first opera company that has been created under this project?

Ms. SCESA. No. Every school that participates in this program goes through the same process. They build an opera company from job applications to accepting those job applications; each student has their own job.

Mr. YATES. Is the seed money given every year?

Ms. SCESA. The seed money is given every year to the Metropolitan Opera Project, but then additional funding is given and then each school continues the process.

Mr. YATES. Suppose the seed money were not granted. Could this program exist?

Ms. SCESA. The seed money is crucial in beginning projects such as this, and allowing the creative process to originate other such projects.

Mr. YATES. Are other participants as wonderful in their singing as this group?

Ms. SCESA. Of course not. [Laughter.]

Ms. YATES. Well, I want to congratulate you and I want to congratulate the children upon a magnificent performance. Keep on the good work, kids. You were very good. And you, too.

Ms. SCESA. Thank you.

Mr. BUNN. Thank you all for taking the time to share with us. [Applause.]

[The statement of Ms. Blount follows:]

AMERICAN
ARTS
ALLIANCE

ADVOCATES FOR THE ARTS

Member Organizations:

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Symphony
Orchestra
League

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Testimony of Debra Blount, Education Director for the Washington Opera, on behalf of the American Arts Alliance in Cooperation with American Symphony Orchestra League, Association of Art Museum Directors, Association of Performing Arts Presenters, Dance/USA, OPERA America, and Theatre Communications Group in Support of FY 1997 Funding for the National Endowment for the Arts before the Subcommittee on Interior and Related Agencies, Committee on Appropriations, U.S. House of Representatives

March 7, 1996

INTRODUCTION: Thank you Mr. Chairman, I am Debra Blount, Education Director for the Washington Opera. I am pleased to appear today on behalf of the American Arts Alliance's membership of more than 2,600 of America's professional nonprofit performing, exhibiting and presenting institutions. I would like to submit testimony to this subcommittee on FY 97 funding for the National Endowment for the Arts (NEA). The American Arts Alliance presents this testimony in cooperation with the American Symphony Orchestra League, the Association of Art Museum Directors, the Association of Performing Arts Presenters, Dance/USA, OPERA America and the Theatre Communications Group.

Since FY 96 began, the NEA has been funded through various continuing resolutions at the Interior Conference Committee level of $99.5 million. This level reflects a sudden and disruptive 40% cut from FY 95 funding, and comes at a time when arts organizations are increasingly using NEA grants to reach the broadest possible section of the American public. We therefore strongly recommend an increase of the maximum amount possible to correct the deep and disproportionate cut that has curtailed the important investment the federal government has made in bringing the arts to people across the country. The arts benefit Americans and serve national goals in education, economic development, community outreach and improving the quality of life.

The NEA is an excellent example of a successful federal program. In fact, there are few federal programs that can boast the accomplishments of the NEA. For over thirty years, the NEA has provided Americans across the country with invaluable exposure to outstanding artistic programming, arts education, and economic growth. No other government agency or private organization in America can offer access to excellence in the arts on as large a scale as the NEA. The loss of public funding **cannot** be replaced by the private sector. Private giving to the arts simply is not keeping up with the rate of inflation. According to 1995 Giving USA, a publication released by the American Association of Fund-Raising Counsel Trust for Philanthropy, when adjusted for inflation, private giving to the arts, culture and humanities *decreased* by 1.82% in 1994. At a time when the federal government is turning more and more frequently to the private sector to make up for decreased federal support, private funding sources are responding to multiple requests from *all* sectors of the nonprofit community. In order to respond to these requests, 24% of businesses expected to decrease giving to the arts in 1995.

Furthermore, giving by individuals and foundations is likely to be locally-based, meaning that those areas of the country without benefit of major donors nearby would find it very difficult to continue arts programming. Only with the ongoing national leadership provided by the Endowment will such efforts continue, thereby serving rural and inner-city areas and economically disadvantaged Americans. NEA support directly benefits citizens across the country through programming that increases community access to the arts.

THE NEA INCREASES ACCESS TO THE ARTS THROUGH COMMUNITY OUTREACH AND EDUCATION PROGRAMS:

Though the United States is rich in natural resources, they are unequally distributed. This is also true of our arts resources. The NEA helps to address this inequality by several means, including supporting many valuable programs nation-wide which overcome geographical barriers to access by bringing arts and performing groups to underserved communities. In many instances, NEA grants provide the seed money arts organizations need to develop outreach programs and forge partnerships within their communities. Countless museums, theatres, symphonies and dance companies across the nation look to the NEA for the leadership and support vital to these outreach programs, which provide art to individuals and groups of every age, income, and cultural background. Consider the following examples of outreach programs in action:

- Grants from the NEA have helped **Ballet West**, based in Utah, to take classical and contemporary ballet to communities throughout the nation, including towns across Utah, Wyoming, New Mexico, Colorado, Idaho, and Montana.

- An NEA grant enables the **Anchorage Symphony Orchestra** to make live musical performances more accessible to surrounding communities. A $50,000 advancement grant, requiring a three-to-one match from local dollars, helps the orchestra to engage in a diverse range of access-related activities such as implementing educational programming for school children; working in partnership with the school district and local community groups such as United Way to provide musical instruments for students in low-income areas; and initiating sign-language interpretation at performances.

- The **Newport Performing Arts Center** and the **Oregon Coast Council in the Arts** (OCCA) in Newport, Oregon present excellent programming to their audiences while working to improve the quality of life in their community though the arts. One of OCCA's programs, the Family Arts Agenda, works with a number of social service agencies, including Lincoln County's Human Services, Extension Service and Juvenile Services. For example, an eight year-old boy who was experiencing severe communication problems had the opportunity, along with his mother, to work with an artist to improve his communication skills. OCCA also works with private programs that serve emotionally disturbed children.

- The **Santa Fe Opera** is well known for its innovative education and outreach programs, which in 1995 served over 20,000 children and 12,000 adults. Among the company's most unique efforts is the Pueblo Opera Program, established in 1973 to encourage Native American involvement in opera. Each year the program reaches thousands of Native American children in New Mexico's eight northern and seven southern pueblos. In 1995, children from three pueblos collaborated to create an original opera titled, "The River Girl," which incorporated elements of Native American music. The company also presents Youth Night at the Opera, now in its 38th year, where children are able to see full performances during the company's main season for a ticket price of $5.00 or less.

- Each year the **Seattle Art Museum** distributes free tickets to underserved communities in the Puget Sound Area. Over 4,500 tickets to a special exhibition, *Chiefly Feasts*, were distributed to the Pacific Northwest Native American community.

In addition to these outstanding examples of community outreach programming made possible by NEA grants, thousands of students in rural and inner-city areas benefit from NEA-sponsored educational outreach programs. Education in the arts has been proven to help students increase cognitive development, improve motivation and discipline, and develop confidence and creativity. For many students, these programs provide the initial exposure to the arts, helping to establish the foundation for a life-long interest and appreciation. In addition, educational outreach programs provide a forum for discovery and discussion of the diversity of cultures recorded and represented in the arts.

•NEA grant dollars are essential to the **Canton Symphony Orchestra** which uses NEA funds to work in partnership with every elementary school in the Canton City district, incorporating music education into the schools through programs that bring more than 3,000 second, third, and fourth grade elementary students to live performances. NEA support also allows the orchestra to continue a 17-year-old project, the String Musical Instruments Learning Experience (SMILE), which brings free string quartet performances to children in 17 school districts. SMILE musicians appear individually in classrooms to familiarize students with the instruments before performing as a group.

•The **Henry Art Gallery** at the University of Washington in Seattle conducts a program called ART LINK which trains teachers in low-income areas to use art in the curriculum. Of the students attending these schools, 87 percent have never visited an art museum. During the classes, the children are able to create art themselves and are also encouraged to discuss their impressions of art work. They also make three visits a year to an art museum.

•NEA funding helped to support a February 6, 1996 event in which more than 3,500 fifth graders from surrounding schools were bused to the **Anchorage Symphony Orchestra** hall to attend a live performance. Prior to the concert, the orchestra provided educational kits for teachers to use in the classrooms, equipping students with the vocabulary and tools to understand what, for most, would be their first experience of a live orchestra performance.

•**The Seattle Asian Art Museum** has introduced *Artstars*, an exciting new program in which museum educators train middle school youth as docents to engage their peers in art appreciation and discovery at SAAM. The program helps these students build understanding of the communicative nature of art and develop analytical skills.

•This year over 5,000 school children from the Tucson area, most from low income and disadvantaged circumstances, will attend performances at **Centennial Hall** on the University of Arizona campus of such artists as Los Folkloristas, Dance Brazil and the Klezmer Conservatory Band thanks to support from the NEA.

•The **Arizona Theatre Company** provides matinees for school students with special preparation materials and class visits by theatre personnel. Attendance from schools increased by 11,000 students last year, and the company continues to develop ways to expand its services for young audiences even further: ATC is in the beginning stages of joining artistic and organizational forces with Childsplay, Inc., an NEA funded theatre for young audiences based in Tempe. By pooling their resources, they will be able to further expand their own programming and develop new ways to work together to enhance the quality and quantity of programs serving young people throughout the state.

NEA FUNDING BOLSTERS LOCAL ECONOMIES: NEA funding also serves as an economic catalyst in communities, fueling the economy in several ways. The ripple effect of a thriving arts community includes greater employment opportunities and increased patronage of nearby restaurants and hotels. This contributes to the community's tourism industry as well as to the small businesses whose services are needed by arts organizations. In addition, the community's enhanced market appeal attracts new industry and corporations based on the higher quality of life and sense of community that arts organizations provide.

The NEA is instrumental in creating an essential partnership between national approval and local support. NEA funds, on average, attract $11 or more from public and private sources for every $1 invested. The nonprofit arts sector also is a significant force in the national economy, contributing approximately $37 billion to the economy and 1.3 million jobs, and returning $3.4 billion to the federal Treasury in income tax. These numbers clearly demonstrate the significant economic impact of the arts.

- Funding from the NEA helps to support the various activities of the **Arizona Theatre Company**, which presented over 300 performances of 16 mainstage, special and developmental productions in 1995 to an audience of nearly 175,000. The theatre employed over 400 theatre workers -- who paid federal and local taxes on $2.1 million of wages. That work was augmented by 475 volunteers.

- In Santa Fe, New Mexico, a city that depends heavily on tourism, one community leader has remarked that the **Santa Fe Opera** is the central pillar of the area's economy. "They're very much responsible for the summer tourist season," says Sabrina Pratt, Executive Director of the Santa Fe Arts Commission, "Ask any hotelier or restaurateur." Over 72,000 people annually attend productions at The Santa Fe Opera, coming from every state and dozens of foreign countries. Conservative estimates show that the company delivers at minimum $150 million annually to the local economy. The Opera is also the largest private employer in Santa Fe, utilizing a staff of over 600 every summer.

CONCLUSION: By investing in our nation's nonprofit arts institutions, the NEA fosters cultural awareness by our citizenry in unique and important ways: by expanding access to the arts; providing a catalyst for private sector funding; boosting local economies; and promoting understanding of our national heritage and experience. With the assistance of the NEA, nonprofit arts institutions, our country's national treasures, help to build a vibrant culture that is distinctly American.

Again, we strongly recommend an increase of the maximum amount possible to correct the disproportionate cut that has hampered the important investment the federal government has made in bringing the arts to Americans across the country. We hope the agency will be able to continue its mission to "foster and support a form of education, and access to the arts and the humanities, designed to make people of all backgrounds and wherever located masters of their technology and not its unthinking servants."

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

DR. JEAN H. FUTRELL, COUNCIL FOR CHEMICAL RESEARCH

Mr. BUNN. Dr. Jean Futrell, with the Council for Chemical Research.

Good morning and welcome.

Mr. FUTRELL. Thank you, Mr. Chairman and members of the subcommittee.

My name is Jean Futrell. I am the chair of the Department of Chemistry and Biochemistry at the University of Delaware. I am pleased to have the opportunity to speak to you today regarding the Office of Industrial Technologies program of the United States Department of Energy. I speak in my capacity as chair of the Government Relations Committee of the Council for Chemical Research.

The member organizations of the Council for Chemical Research are the research managers for chemical sciences in the United States: The heads of academic departments, of chemistry and chemical engineering, vice presidents for research and development at the major chemical industries, and lab managers at the Department of Energy labs. The CCR expresses, therefore, primarily the view of research managers in the chemical enterprise.

First of all, I begin my testimony by thanking this subcommittee for its support for OIT in the Fiscal Year 1996 appropriations bill. I also would like to say that we're well aware that all programs funded by the Federal Government that are characterized as domestic and discretionary, are undergoing increasing scrutiny as you work to address the Nation's budget deficit. CCR fully supports your efforts to balance the budget and your scrutiny of R&D activities.

Energy is a special consideration, in our opinion. It's something that you never notice until the supply vanishes and then it's too late. It has analogies to R&D quite generally. R&D is also focused on the future and not on the present. And the effects of decisions you make today will be felt when the future becomes our present experience. We urge that you consider energy R&D for what it is, an investment in the Nation's future.

CCR agrees with the views expressed in the Yergin report, that energy is central to the Nation and is one of our top national issues. Federal support for R&D is most strongly justified when it serves the national interest and is not in areas that are addressed by market forces alone. It is our position that areas in which the national interest and support of energy R&D, coincides with industry relevance. And this is especially a meritorious consideration for Federal support.

The R&D activities of OIT are strategically organized in the framework of what they describe as "Industries of the Future." They have focused on those industries which consume the most energy and generate the largest quantities of waste in the Nation. The chemical industry is one of the seven target industries that they focus on in their Industries of the Future initiative. The chemical industry joins in their objective of minimizing energy use and minimizing waste.

The CCR enters into this in our collaboration with the Chemical Manufacturers Association, the Society of Organic Chemical Manufacturers Association, the American Chemical Society, and the American Institute of Chemical Engineers to develop a strategic vision for the future of the chemical industry. We also work with OIT within the same framework of a strategic plan to achieve energy conservation and minimize waste. We in fact anticipate that our organization, the Council for Chemical Research, will assume a leading role in implementing these plans that address the strategic future of our Nation.

The CCR is an organization that exists because the research leaders from all three sectors—from our research universities, from industry, from government laboratories—recognize that all of these sectors and the whole range of research, from the most basic and fundamental to the applied research that is the basis of OIT, are part of a seamless whole that needs to be considered in all of its parts. As the Congress struggles with the necessity to rein in our budget deficit, we know that tough choices will have to be made.

The role of the Department of Energy in areas of science and technology remains as valid and essential today as it was when OIT was created in 1976. And the CCR respectfully recommends that you stay the course, in terms of supporting and sustaining this process.

Mr. BUNN. Thank you very much.

[The statement of Mr. Futrell follows:]

KEY POINTS

- The members of the Council for Chemical Research (CCR) are universities, companies, and government research laboratories that conduct research in chemical sciences and engineering. They are represented in CCR by vice presidents, directors, deans, and department chairs with primary responsibility for chemical R&D.
- The U.S. is a declining oil producer that continues to be heavily dependent on foreign oil. The world oil market is stressed and continues to be politically vulnerable.
- We believe that a balanced national research and development portfolio is essential to assure the Nation's future energy security.
- Because industry consumes more than one-third of the energy used in the United States, and the impact of shortages or disruption for industry would affect everyone, DOE's R&D portfolio must include programs with direct linkage to industry. We believe that such linkages must be collaborative and should stimulate the participation of all sectors in the necessary research.
- Over its 20-year life, DOE's Office of Industrial Technologies (OIT) has succeeded in building trusting, collaborative, and cost-shared research relationships with industry that yield substantial energy savings.
- The activities conducted by OIT are a vital element of our national energy security strategy and must be sustained under any budget scenario.

Mr. Chairman and Members of the Subcommittee:

My name is Jean Futrell and I am the Chair of the Department of Chemistry and Biochemistry at the University of Delaware. I am pleased to have the opportunity to testify before you today regarding the Office of Industrial Technologies (OIT) program of the U.S. Department of Energy (DOE). I am speaking in my capacity as Chair of the Government Relations Committee of the Council for Chemical Research (CCR), an organization whose members are universities, companies, and government laboratories that conduct research in chemical sciences and engineering.

We wish to begin our testimony by thanking this Subcommittee for its support of OIT in deliberations on the fiscal year 1996 appropriations bill.

We are well aware that all programs categorized as domestic and discretionary are undergoing increasing scrutiny as you work to address the Nation's budget deficit. We are most familiar with discussions concerning federal support for R&D and note with concern the arguments taking place concerning the role of government in R&D that can be applied to near-term problems.

CCR exists because chemical research leaders from universities, industry, and government laboratories know that all sectors--and all levels of research--are integral parts of the research chain. From our perspective, programs that provide the leadership and resources needed to facilitate industrial collaboration --especially in areas of broad impact such as energy R&D -- are vitally important to the Nation.

Energy is one of those things that you don't notice until it's gone, and then it's too late. The reality is that industrial research is focused on relatively near-term production, product development, and profitability issues. Relatively long-term issues with unclear profitability, especially ones requiring special research capabilities, often receive lower priority. Because the impact of energy disruption and shortage on industry is felt by everyone, the government's role in fostering improved industrial efficiency and productivity is both appropriate and necessary.

The work of DOE's Office of Industrial Technologies (OIT) might be described as good science and technology with an energy objective. OIT improves our nation's energy future by supporting research, development, and demonstration that improves energy efficiency and productivity in the industrial sector of the economy. Virtually every industrial process could be improved to be more energy efficient through new technology. When you reduce energy consumption and waste in industrial processes, you also tend to reduce capital, operating, and maintenance costs, and improve productivity and product quality that enhances the competitiveness of U.S. industries. We believe it is good to reap economic growth as an added benefit of the Nation's investment in energy R&D.

Facing Energy Challenges

While there is much discussion about the mission of the Department of Energy, it has always included a strong focus on energy sources and utilization. We read with interest the final report of the Secretary of Energy's Task Force on Strategic Energy Research and Development (the "Yergin report") which was published last June. This report summarizes important trends, including:

- Energy is fundamental to the ability of industrial societies to function, and the demand for energy is growing world-wide.
- The U.S. is a declining oil producer that continues to be heavily dependent on foreign oil. The world oil market is stressed and continues to be politically vulnerable.

- DOE's investment in energy R&D is only 0.5% of America's annual energy bill.
- These R&D activities have contributed a great deal to the energy successes of the last 15 years, while contributing to our standard of living, new products and processes, new jobs, and new opportunities.

We agree with the view expressed in the Yergin report that energy is so central to the vitality of our dynamic country that it must be one of our top national priorities. Federal support for R&D is most strongly justified when the R&D serves national interests not adequately addressed by market action alone. But that should not mean that the benefits of government-sponsored research should not be industry-relevant.

Working with Industry

OIT's R&D activities are strategically organized under the framework of the "Industries of the Future" activity, in which OIT is working to encourage industries (not individual firms) that consume the most energy (80% of energy used for manufacturing) and generate the most waste (90% of the total for manufacturing) to incorporate energy considerations into long-term plans. The effort involves development of industry visions and supporting roadmaps with time horizons of from 3 to 20 years. The chemical industry is one of the seven target industries, including petroleum refining, aluminum, steel, metalcasting, forest products, and glass, in OIT's Industries of the Future effort.

The way in which OIT works with these industries is supportive and collegial, not compliance-driven. The chemical industry's "Vision 2020" project is a case in point. CCR is working with the Chemical Manufacturers Association, the Society of Organic Chemical Manufacturers Associations, the American Chemical Society, and the American Institute of Chemical Engineers to develop the chemical industry's vision for the future. Working groups in the areas of new chemical sciences and engineering technology, manufacturing and operations, information management, and supply chain and logistics, have identified key challenges the chemical industry must meet to achieve its vision. The Vision 2020 report should soon be published, and the cosponsoring organizations are in the process of developing implementation plans.

This type of collaborative, long-range view of the chemical enterprise has never been done before. This is not a government initiative, but OIT's encouragement, their sharing of the experiences of other industries undertaking similar efforts, and their willingness to work with us in their mission area over the long haul, have been important elements in our achievements to date.

I would also like to note an increasing role for utilizing the national laboratories specifically in support of the Industries of the Future activity. The labs have facilities and expertise at work on DOE's mission that also can also help industries address long-term energy R&D issues. OIT has been a leader in facilitating industry access to the system in a user-friendly, efficient manner. The laboratories have formed a Coordinating Council in support of the Industries of the Future activity, which identifies core competencies and provides expedited access to the research facilities. This enables to labs to work together with industry to address common problems.

The bulk of OIT's work is in industrial energy research and development with a broad, long-term view. Success is measured in quadrillion BTUs (more than 615 quads for 47 projects monitored by OIT). However, OIT also provides practical help for small and medium sized businesses through 30 university-based industrial assessment centers. Through these centers, specially-trained students conduct on-site energy and waste assessments. On the average, improved energy use and reduced waste production resulting from improvements recommended in these assessments translate into potential savings of $40,000 per site ($23,000 in energy savings, and $17,000 in waste reduction).

Conclusion

CCR exists because chemical research leaders from universities, industry, and government laboratories know that all sectors -- and all levels of research -- are integral parts of the research chain. From our perspective, OIT programs provide the leadership and resources that are essential to industrial collaborations in the area of energy R&D. Because the impact of energy disruption or shortage on industry is felt by everyone, the government's role in fostering improved industrial energy efficiency and productivity is both appropriate and necessary. That they also improve the bottom line for industry is a plus for the national economy.

As the Congress struggles to rein in our national budget deficit, tough choices will have to be made. The role of DOE in areas of science and technology beyond basic research remains as valid and essential as it has since OIT's creation in 1976.

Thank you very much, and I will be pleased to answer any questions you may have.

The Council for Chemical Research is a scientific and educational association dedicated to promoting closer research linkages among industry, government, and academia. The Council's members are represented by department heads from 157 leading U.S. universities, and vice presidents and directors of research from 36 major industrial firms and nine government laboratories. Chemical R&D expenditures accounted for by CCR members amount to $7 billion annually, approximately 75% of the comparable U.S. total.

Mr. BUNN. We're in the middle of a vote. I have to get on the floor and vote, so we'll recess very briefly and we'll resume in just a few minutes.

[Recess.]

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

STANLEY BORYS, SENIOR VICE PRESIDENT, RESEARCH, INSTITUTE OF GAS TECHNOLOGY

Mr. BUNN. Now we'll hear testimony by Stan Borys. We're running about 15 minutes behind schedule, so I would remind everybody to be as brief as you can and we'll try to get everyone scheduled in before we break for lunch.

Mr. BORYS. I thank you and appreciate this opportunity.

The Institute of Gas Technology in Chicago is a not-for-profit research and educational institution. We've conducted research and commercialization activities for Federal and gas industry sponsors since 1941. Our testimony this morning will cover the DOE energy efficiency and conservation programs under the Office of Industrial Technologies, as well as DOE's fossil energy programs.

The natural gas industry is developing a strong relationship with DOE to help mesh industry needs with DOE programs. The current restructuring in the gas industry, triggered in large part by Federal de-regulation, has caused a serious impact on the availability of gas industry R&D funds. Development of that newest technologies has been most seriously affected. While we expect this downturn to be temporary, the current situation puts increased emphasis on Federal leadership and commitment to natural gas research and development.

OIT funding and leadership fosters identification of industry-wide cross-cutting technology needs that would not otherwise occur solely through the private sector. IGT recommends strong Fiscal Year 1997 funding for OIT. The OIT projects are competitively selective and IGT is active with OIT in a number of areas. Examples of technologies at IGT that are being or could be advanced under the OIT program include Submerged Combustion Melter, Compact Low-Emission Process Heater, Forced Internal Recirculation Burner, and Advanced Low-NO_X Glass Melter.

The Submerged Combustion Melter directly fires natural gas and oxygen into a molten bath. The intimate contact with the flame in the molt reduces molt temperature, thereby reducing NO_X emissions. Effective heat transfer reduces size and cost of equipment. It is suitable for a number of applications in glass, chemicals, petroleum refining, and metals industries. A pilot-scale melter is expected to cost $3 million over one-and-one-half years. The commercial demonstration unit will cost $5 million over a two-and-one-half year period. Of these totals, over $3 million will be provided by industry cost-sharing.

The Compact Low Emission Process Heater is a porous matrix heater for refinery, chemical, forest products, and steel industry applications. The combustion for this heater occurs within a packed bed that contains tubes carrying materials to be heated. Flame temperature is lower than for conventional heaters, again decreasing NO_X emissions. The porous matrix heater has inherently high temperature uniformity, ideal for heating chemical feedstocks. Uniform heating of feedstocks is important to product quality, equipment life, and operating costs. If funded, this project will require $3 million of Federal funds over four fiscal years, and would be matched by approximately $2 million in private sector cost-sharing.

Development of IGT's Forced Internal Recirculation Burner for commercial boilers is already under way through OIT's combustion cross-cutting program. This technology will meet the existing and future emissions regulations without costly equipment. The FIR burner, through a simple stationary structure in the combustion zone, takes cooler gases from the top of the flame and recirculates them to the base of the flame. This lowers flame temperature, again lowering NOx emissions. IGT is now in phase I of a three phase project. The total program will cost $2 million, with $620,000 from OIT and over $1.3 million coming from industry.

With DOE's fossil energy programs, IGT calls the subcommittee's particular attention to the molten carbonate fuel cell program. IGT developed the molten carbonate fuel cell technology now being commercialized by M–C Power. A little earlier you heard testimony from M–C Power. IGT supports full funding of M–C Power's request.

In addition to IGT's primary focus related to the gas industry, we also have had extensive programs in coal technology. Our U-Gas technology, currently under commercialization by Tampella Power, is one of the leading coal gasification technologies in the U.S. for integrated gasification-combined cycle applications. Although IGS is not currently participating in major coal-related R&D efforts, we strongly support a continued significant coal research program within DOE. Coal will continue to be the main source of national and worldwide energy supplies, and continued development of coal technologies will play a vital role in our energy future.

This subcommittee, even in the face of declining overall budgets, has supported steady gains in DOE's natural gas R&D program. As the historic research arm of the natural gas industry, IGT deeply appreciates and encourages your continued and growing support of natural gas-related R&D. Increased use of natural gas offers gains in economic efficiency and in environment performance. IGT appreciates the opportunity to present these recommendations to the subcommittee, and would be happy to provide any additional information or comments, as requested.

Mr. BUNN. Thank you very much.

[The statement of Mr. Borys follows:]

Testimony of the Institute of Gas Technology
by
Stan Borys, Senior Vice President, Research
to the
Subcommittee on Interior Appropriations
House Committee on Appropriations
March 7, 1996

The Institute of Gas Technology (IGT) is a Chicago-based research and educational institution that has been conducting research in federal energy and environmental programs since 1941. As a not-for-profit research laboratory, our primary function is to develop sound, innovative technologies in response to nation-wide energy and environmental needs and then license or sell those technologies to private sector entities for commercialization.

Our testimony this morning will cover a broad range of technology areas;

- DOE Fossil Energy coal programs;
- DOE Fossil Energy natural gas programs;
- DOE Fossil Energy molten carbonate fuel cell program; and
- DOE Energy Efficiency/Conservation programs under the Office of Industrial Technologies (OIT)

DOE Fossil Energy coal programs:

IGT's primary focus has historically been on developing technologies related to the natural gas industry, but we have also had extensive programs in coal technology. Our U-Gas technology, was licensed to and under commercialization by Tampella Power, is one of the leading coal gasification technologies in the U.S. for integrated gasification-combined cycle (IGCC) applications. We are also currently involved in building a series of U-Gas gasifiers with a partnership in China, completely funded by the Chinese, where our technology is particularly well-suited to the characteristics of China's vast coal reserves. IGT also has a long history of research, supported by both DOE and the State of Illinois, in coal cleaning, gasification, liquefaction and refining technologies.

Although IGT currently is not participating in any major coal-related R&D efforts, we strongly support a continued, significant coal research program within DOE. Even with projected advancements in renewable energy supplies and technologies, coal will continue to be the main source of nation- and world-wide energy supplies, and continued development and improvement of coal-related technologies will play a vital role in our energy future. DOE programs have already achieved great milestones in developing cleaner, more efficient technologies for the combustion of coal, and great strides in finding new applications for the energy and chemical feedstock values of our nation's coal resources, but those programs need to have continued support in order to bring their economic, efficiency and environmental gains to full value.

DOE Fossil Energy natural gas programs:

This subcommittee, even in the face of declining overall budgets, has supported steady gains in DOE's natural gas R&D program. As the historic research arm of the natural gas industry, IGT deeply appreciates and encourages your continued, growing support of natural gas-related R&D. Increased use of natural gas offers gains in economic efficiency and environmental performance for many of our nation's utility, industrial and transportation energy applications.

The natural gas industry, through the leveraging and leadership of GRI, AGA and other industry coalitions, is developing a strong relationship with DOE in order to help mesh industry needs and priorities with DOE programs. That cooperation and consultation is helping to develop an efficient, well-targeted R&D program within DOE. The current economic competitiveness and restructuring in the gas industry, triggered in large part by federal deregulation, has caused, at least for now, a serious impact on the availability of R&D funds within the natural gas industry, particularly for the development of end-use technologies. While we hope that down-turn in industry funding is only temporary, it puts even more importance on federal leadership and commitment to natural gas R&D.

DOE Fossil Energy molten carbonate fuel cell program:

Within DOE's natural gas program, IGT would call this subcommittee's particular attention to the molten carbonate fuel cell (MCFC) program. IGT is the original developer of the MCFC technology now being moved toward commercialization by the M-C Power Corporation. During this hearing you will receive testimony directly from M- C Power regarding its programs and development, and from the Alliance to Commercialize Carbonate Technology (ACCT). ACCT is a rapidly-growing group of future users of MCFC technology who are working closely with M-C Power to help ensure M-C Power's progress and develop ready markets for MCFCs when the technology becomes commercially available.

For the DOE MCFC program, IGT supports full funding of M-C Power's request and the statements of both M-C Power and ACCT. Continued progress of the MCFC technology development relies on strong, consistent federal funding. The MCFC technology promises great breakthroughs in energy efficiency, environmental performance and siting flexibility for distributed, incremental power generation to meet our nation's energy needs, but industry planning for how to best utilize and integrate those qualities depends on MCFC technology having a predictable path to commercial development. Adequate federal funding is the key to that dependable path.

DOE Energy Efficiency/Conservation programs under the Office of Industrial Technologies (OIT):

An IGT priority for FY97 funding of DOE programs under the jurisdiction of this subcommittee is the spectrum of programs in the Office of Industrial Technologies (OIT). IGT is already working closely with OIT in a number of OIT's areas. OIT's approach is a sound method for focusing national priorities on solving industry-identified energy efficiency and environmental needs in nation-wide industries that will benefit from solutions developed through federal and private sector cost-sharing partnerships that can then be made available to all participants in that industry. In the case of OIT's cross-cutting technologies program, the solutions developed can expand benefits to a broad range of U.S. industries. The OIT "vision" area industries are: glass, petroleum refining, chemicals, steel, aluminum, forest products and metal casting. These industries, nation-wide, are the largest industries, representing over 80% of our industrial energy use, but lack a centralized R&D focus to drive new technologies. OIT coordination, funding and leadership fosters nation-wide advancements on industry-wide technologies that would not otherwise occur solely through the private sector. An important supplement to the OIT vision areas is the portion of OIT programs that focus on "crosscutting" technologies, where specific solutions applied to one industry can also be used to meet the needs of other industries.

The OIT programs are competitively selected, and IGT recommends strong FY97 funding for OIT so that the highest possible number of technologies can advance.

Examples of technologies currently under development at IGT that already are or could be advanced under the OIT program are:

- **Oxygen-Fired Submerged Combustion Melter:** An efficient and cost effective oxygen-fired combustion melter can be developed as a melter for glass industry and chemicals industry applications. In submerged combustion melting, natural gas and oxidant (preheated air, enriched air, or oxygen) are fired directly into and under the surface of a molten bath. Injecting the flame directly into the molten bath reduces the flame temperature, reducing NO_X formation. Combustion products bubbling through the bath provide very effective heat transfer. The bubbles also increase bath turbulence, which promotes melt composition homogeneity. The combination of these advantages also means that the same volume of glass production can be achieved from smaller, lower-cost melters. The submerged combustion melter is suitable for a number of glass, chemicals, petroleum refining and metals industries applications, including direct production of sodium silicate, fiberglass, and mineral wool, waste recycle, waste utilization and production of feedstocks from waste materials, and as an add-on to increase the productivity of existing fiberglass and container glass furnaces. The submerged combustion melter will reduce CO, CO_2 and NO_X emissions, provide better product quality resulting from more uniform composition, and improve thermal efficiency. It is also expected to have broad application in other industries such as cement production and solid waste conversion.

  A 500 lb/hour pilot-scale oxygen-fired submerged combustion melter is being constructed at IGT using existing natural gas industry funds. In the first phase of this project, if supported through DOE funds, the pilot-scale melter will be configured to operate as a melter for specific applications. The first expected application is the direct production of sodium silicate, utilizing industrial oxygen. Productivity, thermal efficiency, product quality, and emissions will be measured and optimized for the process. Designs for a commercial-scale (50 - 125 ton/day) unit will be developed. In the second phase, a commercial-scale demonstration unit will be built at a user facility prior to full market introduction. Industry participants are expected to include PQ Corp. Owens Corning Fiberglass, Fibrex, USG, A.C. Leadbetter, Fuller Co., Combustion Tech, Inc., and the Gas Institute of the Ukrainian Academy of Science. Phase I of the proposed project is expected to cost $3 million over one and a half years; Phase II will cost $5 million over two and a half years. Of those totals, more than $3 million will be provided by industry cost-sharing.

- **Compact Low-Emission Gas-Fired Process Heater:** A low emission (<15 ppm NO_x and <50 ppm CO), highly efficient and cost effective fuel gas/natural gas-fired porous matrix heater can be developed as a process heater for petroleum refining and chemical industry applications. The heater is compact, efficient and produces lower emissions and uniform temperatures.

  A large amount of energy is consumed in both the petroleum refining and chemicals industries for process heating, heating feed materials prior to introducing them into chemical reactors or separation processes. It is important that this heating process occur with high energy efficiency, low emissions, and without degrading the material being heated. It is also important that the materials of construction allow the equipment to have a long service life and not contaminate the material being processed.

  Because the combustion in the IGT-proposed heater occurs within the interstices of a packed bed which contains tubes carrying the material to be heated, the flame temperature is lower than conventional heaters, thereby generating less NO_x emissions. The porous matrix heater has inherently high temperature uniformity, which provides an excellent source for heating petroleum and chemical feedstocks. Uniform heating of feedstocks is important since many petroleum and chemical materials are temperature sensitive. Non-uniform heating of those materials due to hot spots may cause chemical changes while the materials are still in the heater tubes, and can lead to reduced product quality, decreased equipment life and increased operating costs.

  The porous matrix heater can also be utilized as a boiler or water heater for use in the steel, forest products, petroleum refining and chemicals vision areas.

  If this project is supported with DOE funds, it will begin with an experimental phase, in which an existing bench-scale porous matrix heater at IGT will be modified and tested using simulated refinery/chemical plant fuel gases and a simulated refinery or chemical plant feedstocks to obtain heat transfer, energy efficiency, and emissions data useful for design and scale-up. In the second, modeling phase, an existing computer program developed for water heating will be modified and validated using simulated refinery or chemical plant fluids. The results of these two phases will be used to design a prototype unit which will be constructed and tested at IGT's pilot-scale facility. Results of the prototype unit testing will be used to design and construct a full-scale field demonstration unit to be conducted at an industry supplied site.

  If undertaken, this project would require a total of approximately $3 million in federal funds, spread over four fiscal years, and would be matched by approximately $2 million in private sector cost-sharing.

- **Forced Internal Recirculation (FIR) Burner:** Efforts to develop IGT's FIR burner concept are already underway through a competitive selection in DOE's OIT combustion cross-cutting program. The FIR burner concept is an ultra-low-emission, natural gas-fired burner that will be designed for use in both new and retrofit applications in waterwall and watertube boilers, in a wide range of scales. The increasing nation-wide concern about NO_x emissions from boiler applications has led to the need for the development of economic, energy-efficient methods of meeting emissions regulations without complex and costly equipment and without parasitic power losses.

The FIR burner, through a simplified, stationary structure built inside the burner combustion zone, takes cooler exhaust gases from the top of the flame and recirculates them to the base of the flame. This lowers overall flame temperatures, thus lowering NO_X emissions. Because the FIR approach works within the burner, it is far more economic and effective, in both emissions reductions and energy efficiency, than more conventional approaches.

IGT is now in Phase I of this three-phase project. The total program will cost approximately $2 million, with approximately $620K coming from OIT funds.

- **Advanced Low-NO_X Glass Melter:** Glass furnaces use extremely high air-preheat temperatures, resulting in very high levels of NO_X production. Because of that, these furnaces are being placed under increasingly stringent national and regional emission standards.

  To help the glass industry meet these regulations, Southern California Gas Company, GRI, IGT, and our industrial partners, Combustion Tec, Inc., Air Products and Chemicals, Inc., Anchor Glass Container Corporation and Owens Brockway Glass Containers are developing an oxygen-enriched air staging (OEAS) system for retrofitable NO_X control technology for glass furnaces. This OEAS technology would also be applicable to many other types of high-temperature furnaces, including sideport regenerative glass furnaces for flat glass, and fits within the glass industry "vision" area of OIT.

  The OEAS technology is a unique method of combustion air staging to control NO_X formation by reducing the oxygen available in the glass melter flame's high temperature zone and by improving flame temperature uniformity. The amount of combustion air entering through the melter ports is reduced to decrease NO_X formation in the flame, and oxygen or oxygen-enriched air is added at strategic locations on the furnace to complete the combustion in a second stage within the furnace. Tests already conducted, supported by GRI and industry sources, on end-port glass furnaces show a 50-70% reduction in NO_X formation without any adverse impacts on other emissions, furnace performance, or glass quality. Those tests show an excellent potential for similar performance on sideport furnaces, which are used in nearly 65% of the U.S. glass production. The first side-port test, supported by OIT, is currently underway.

  If supported by additional OIT funding, OEAS technology would be advanced through additional testing in side-port glass melters at a container glass plant and at a flat glass plant, which operates with a completely different design and at a much larger scale than container glass operations. The additional container plant tests would cost approximately $2M and take one-and-a-half years to complete. The proposed side-port test at a flat glass facility would cost $3M, spread over 2 years. Industry will cost-share approximately 50% of the cost of these demonstrations.

IGT appreciates the opportunity to present these recommendations to the subcommittee, and would be happy to provide any additional information or comments if requested.

THURSDAY, MARCH 7, 1996.

NEH

WITNESS

LARRY N. VANDERHOEF, CHANCELLOR, UNIVERSITY OF CALIFORNIA-DAVIS

Mr. BUNN. From the University of California, chancellor Larry Vanderhoef.

And again, I would remind the remaining witnesses that if you can be brief, your entire statement will be entered into the record.

Mr. VANDERHOEF. Thank you, Mr. Chairman.

I appreciate the opportunity to testify today and I will try to keep it short. I've been here just a little, for about an hour, and I'm reminded that the willingness of committees like this to hear voices from across the country and of all ages, even singing voices, occasionally, is what makes us a great country and I truly appreciate the opportunity.

I'll speak today to preserving funding for the National Endowment for the Humanities. I'm the chancellor at the University of California at Davis. That's one of nine University of California campuses, and it is on behalf of the entire University of California system that I'm here today to express our support for the National Endowments.

I'd like to begin by thanking the committee for the efforts that it made last year to continue Federal funding for the National Endowment for the Humanities, despite the very difficult budget climate. I realize, I think we all do, that the "balance the budget train" is the right thing at this time and it's a train that's left the station. You have hard decisions to make and I appreciate that.

I understand that the funding for Fiscal Year 1996 is not yet resolved, but that early efforts to eliminate all funding for the NEH were opposed by this committee and we are grateful for that support and we hope that the Fiscal Year 1997 budget will allow for continued funding of this important Federal program.

The National Endowment for the Humanities provides funding that supports the fundamental features of scholarship and teaching at the University of California. The mission of the Endowment actually mirrors many of our goals as California's public university. The challenge we face in California with our highly multi-cultural population is to find and celebrate those things that bind us together as Californians and as Americans. The National Endowments help thousands of Californians—students, faculty, and citizens—explore, renew, expand our cultural and artistic heritage by allowing Californians of all income levels and all areas of the State, no matter how remote, access to information on our common cultural heritage.

This shared knowledge of our common heritage and of the responsibilities of democracy, are the building blocks of a free, functioning society. The National Endowments for the Humanities plays a key role in enabling this cross-cultural and cross-generational sharing of the knowledge.

My own campus is an example, a good example, of how NEH-funded research goes hand in hand with the mission of a research-intensive university. Many people know UC-Davis is a world class institution, especially in the areas of agriculture. We're known well for grapes and wine-making and the such, but we are also well known in the environmental sciences and veterinary medicine. Despite the prominence of these long-standing agricultural related programs, we view our programs in the humanities as the critical link that has enabled us to attain the status of one of the top 20 comprehensive public universities in the Nation.

NEH provides the margin of excellence that has allowed our liberal arts programs to reach the same high regard as our more famous, longer standing programs. And they enable us to provide a quality, well-rounded education to all of our students.

Across the State, the Federal investment in California's humanities programs has been substantial. In the last five years the University of California has successfully competed for over $28 million in grants from the NEH. Additional support to UC scholars is also provided by NEH in the form of fellowship stipends and awards for travel to collections and that is not reflected in these numbers, but it's estimated to amount to another $2 million. This support is primarily for four categories of activities: Preservation, cataloguing, curriculum innovation, and outreach programs.

The largest category of funding UC receives from the NEH is for preservation of endangered books, endangered documents, newspapers, artifacts that are essential to our common cultural heritage. This is a vital program that preserves unique material that cannot be replaced if lost or allowed to disintegrate. A wonderful example of the preservation work NEH has funded at UC is the California Newspaper Project, which is preserving California's early newspapers. This project will not only preserve an important piece of California history for future generations, it is serving to be a source of valuable information about early California life and development, about earthquakes and other natural disasters that have plagued our State.

NEH also funds projects at the University of California for the cataloguing and editing of collecting of manuscripts, documents, and papers that are of important historical nature and of cultural figures. NEH grants at UC support curriculum innovation projects, including a major effort to strengthen foreign language instruction, that is greatly needed if we are to educate future generations of Americans that are able to compete in what is an increasingly diverse and global economy.

NEH also provides the university with funding to support important outreach programs in our community. NEH grants provide seed funding for summer seminars. Many of the UC campuses hold these seminars for high school and college teachers. They aim to strengthen and reinvigorate their teaching and facilitate the direct transfer of new humanities scholarship and knowledge to the classroom.

From the national perspective, with its value shared across so many boundaries, such NEH sponsored work does not belong to the institutions or to the individuals in those institutions who perform the research, but truly become a public resource that is deserving of public support. It is also a good investment of the Federal dollar. Knowing what it costs to support science research, scholarship in the humanities seldom requires that kind of expensive instrumentation or individual research facilities. So the total sums that are sought and granted for humanities scholarship are smaller by orders of magnitude than those in many science disciplines.

But they are in my mind, and I am a scientist, they are no less important. The infrastructure of the humanities does not generally accrue to individual scholars and projects. It is, rather, commonly held and shared, in libraries and archives and collections in which they are stored, catalogued and preserved. Every collection is in essence a public trust and is held in perpetuity for the use of scholars from disparate places and times. They are so very important to the universities for sure, but to the country, in my mind.

Thank you for the opportunity to speak with you today about the importance of this Federal support for the humanities to the University of California.

Mr. BUNN. Thank you very much.

[The statement of Mr. Vanderhoef follows:]

Mr. Chairman and members of the Committee, I greatly appreciate the opportunity to testify before you today on the importance of preserving funding for the National Endowment for the Humanities. I am the Chancellor of the University of California at Davis, which is one of the nine University of California campuses, and it is on behalf of the entire University of California system that I am here today to express our strong support for the National Endowments.

I would like to begin by thanking you, Mr. Chairman, and this Committee for the efforts you made last year to continue federal funding for the National Endowment for the Humanities despite this difficult budget climate. I understand the funding for fiscal year 1996 is still not yet resolved but that early efforts to eliminate all funding for the NEH were opposed by this committee. We are grateful for your support and hope that the fiscal year 1997 budget will allow for continued funding of this important federal program.

The National Endowment for the Humanities provides funding that supports the fundamental features of scholarship and teaching at the University of California. The mission of the Endowment uniquely mirrors many of our goals as California's public university. The challenge we face here in California, with our highly multi-cultural population, is to find and celebrate those things that bind us together as Californians and as Americans. The National Endowments help thousands of California's students, faculty and citizens explore, renew, and expand our cultural and artistic heritage by allowing Californians of all income levels and all areas of the state no matter how remote, access to information on our common cultural heritage. This shared knowledge of our common heritage and of the responsibilities of democracy, are the building blocks of a free, functioning society. The National Endowments for the Humanities plays a key role in enabling this cross-cultural and cross-generational sharing of knowledge.

My own campus is an excellent example of how NEH-funded research goes hand in hand with the mission of a research-intensive university. Many of you may know of UC Davis's world class programs in Agriculture, Environmental Science, and Veterinary Science. Despite the prominence of these long-standing programs, we view our programs in the humanities as the critical link that has enabled us to attain the status of one of the top 20 comprehensive public universities in the nation. NEH provides the margin of excellence that has allowed our liberal arts programs to reach the same high regard as our more famous, longer standing programs and enable us to provide a quality, well rounded education to all of our students.

Across the state, the federal investment in California's humanities programs has been substantial. In the last five years, the University of California has successfully competed for over $28 million in grants from the NEH. Additional support to UC scholars is also provided by NEH in the form of fellowship stipends and awards for travel to collections that is not reflected in these numbers but which is estimated to amount to over $2 million. This support is primarily for four categories of activities: preservation, cataloguing, curriculum innovation, and outreach programs.

The largest category of funding UC receives from the NEH is for preservation of endangered books, documents, newspapers, and artifacts that are essential to our common cultural heritage. This is a vital program that preserves unique material that cannot be replaced if lost or allowed to disintegrate. A wonderful example of the preservation work NEH has funded at UC is the California Newspaper Project, which is preserving California's early newspapers. This project will not only preserve an important piece of California history for future generations, it is serving to be a source of valuable information about early California life and development, and about earthquakes and other natural disasters that have plagued our state.

NEH also funds projects at the University of California for the cataloguing and editing of collections of manuscripts, documents, and papers by important historical and cultural figures. NEH grants at UC support curriculum innovation projects, including a major effort to strengthen foreign language instruction that is greatly needed if we are to educate future generations of Americans that are able to compete in our emerging global economy. NEH also provides the University with funding to support important outreach programs in our communities. NEH grants provide seed funding for the summer seminars many of the UC campuses hold for high school and college teachers. These seminars aim to strengthen and reinvigorate their teaching and facilitate the direct transfer of new humanities scholarship and knowledge into the classroom. The ultimate beneficiary of these institutes and seminars are the thousands of California schoolchildren who receive better instruction in their history, literature, and language classes. These NEH programs extend learning beyond our individual campuses and classrooms, and across the boundaries of departments and disciplines. Such activities have a ripple effect as direct participants incorporate their new understanding into teaching and scholarship in settings far from large institutions like UC.

From the national perspective, with its value shared across so many boundaries, such NEH sponsored work does not "belong" to the institutions or individuals who perform the research but becomes a public resource that is deserving of public support. It is also a good investment of the federal dollar: scholarship in the Humanities seldom requires expensive instrumentation or individual research facilities. Hence, the total sums sought and granted for Humanities scholarship are smaller by orders of magnitude than those in many science disciplines, but they are no less important. The infrastructure of the Humanities does not generally accrue to individual scholars and projects: it is, rather, the commonly held and shared in libraries, achieves, and collections in which they are stored, cataloged, and preserved for use by infinite sets of scholars and citizens across the generations. Every collection is in essence a public trust, held in perpetuity for the use of scholars from disparate places and times, and every institution that maintains a collection is doing so not only for its own members but for those who will come now or in the future in search of the knowledge it contains.

Thank you for the opportunity to speak with you today about the importance of federal support for the humanities to the University of California. We all hope the 1997 budget will allow for continued federal support for the wonderful scholarship and teaching made possible through grants from the National Endowment for the Humanities. I would be pleased to answer any questions you may have.

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

RICK LOPEZ, DEPUTY SECRETARY, NEW MEXICO DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES, ON BEHALF OF THE NATIONAL ASSOCIATION OF STATE ENERGY OFFICIALS

Mr. BUNN. Rick Lopez, National Association of State Energy Officials. Welcome.

Mr. LOPEZ. Thank you. I'll be brief.

Mr. Chairman, I'm Rick Lopez, Deputy Secretary of the New Mexico Energy, Minerals and Natural Resources Department. And I am pleased to have the opportunity to appear before you today during your consideration of the Department of Energy's Fiscal Year 1997 energy program funding.

Today, I am testifying on behalf of the National Association of State Energy Officials, NASEO. NASEO is comprised of all 50 states, our territories, and the District of Columbia. Today, I request your consideration to support affective Fiscal Year 1997 funding for the State Energy Conservation Program, SECP, and the Institutional Conservation Program, ICP. In this difficult budget-making era, I urge you to consider the utmost necessity for Federal funding leadership to ensure that all Americans have the opportunity for affordable energy, allow communities which create realistic jobs new industries and technologies, clean and healthy environments, and cost effective renewable energy.

These two energy programs, SECP and ICP, are instrumental in the development of these opportunities. For example, New Mexico invested SECP funds in a statewide pollution prevention program to assist local governments in municipal waste management planning, waste reduction, recycling education and implementation, and marketing of recyclable products. Through this, three manufacturing enterprises were established. Over 150 good paying jobs were created; $4.2 million were leveraged and $1.72 million in energy savings are documented in material production alone.

NASEO recognizes the subcommittee's appropriations constraints due to your determination to assist with the development of a balanced budget. We pledged last year to work with you and your staff to develop a fiscally sound, cost effective mix of energy research and delivery programs highly beneficial to the American consumer, businesses, and industries. We continue to hold that philosophy today.

Mr. Chairman, unfortunately for the American people, this subcommittee for Fiscal Year 1996, cut these cost effective energy programs overall by 50 percent and eliminated ICP. We understand the motive of this drastic reduction and the need for a balanced budget; however, with this 50 percent cut, it is extremely difficult for the states to deliver energy efficiency services to the American people. Services which create jobs, improve our environment, and specifically assist in resolving our national energy needs.

One additional issue remains in the Fiscal Year 1996 bill that we want to stress today. In light of the drastic 50 percent cut in the state energy programs and the delay in the final appropriation, the requirement for this 100 percent match is simply unreasonable and unworkable. We urge your flexibility in this area. We propose that this subcommittee allow consideration to fund SECP and ICP by $45 million in Fiscal Year 1997. This would be 15 percent below the Fiscal Year 1995 funding level. We also ask for consideration that the deployment programs be treated equitably in comparison to R&D programs. The mission of the State energy offices is to deliver energy programs directly to the taxpayer.

This mission was recognized by the language contained in last year's House budget resolution to fully support these State energy programs. This support was echoed by a relevant authorizing committee, the House Commerce Committee and the Energy and Power Subcommittee.

SECP is a catalyst for a number of successful applications of the Department of Energy's research and cooperative efforts. It is the driving force in the adoption of all interior home energy ratings programs and energy efficient mortgages, provides energy education in our public schools and as a result, SECP programs generate a great deal of non-Federal investments in energy projects, averaging $19.00 of public and private investments for every dollar of Federal appropriation. However, the key to this is the Federal contribution, critical to producing a large amount of this leverage.

Mr. Chairman, my testimony has other critical examples and I won't go through that.

To manage the limited funds available for continued energy efficiency efforts, we must provide a well-balanced research agenda and delivery mechanism. This delivery mechanism must be capable of reaching outside the confines of the beltway to those who benefit from the deployment of research in addition to providing benefits to those who conduct the research.

State energy programs are the best delivery mechanisms for achieving this balance. These programs have been and will continue to provide a pivotal component of the deployment equation. In the entire Department of Energy budget, there are less than $250 million in programs that provide a direct return to the American taxpayer through SECP and ICP and Weatherization programs. Providing adequate funding for these programs is the key to the success of this subcommittee's energy efficiency programs. Thank you.

Mr. BUNN. Thank you. And the examples that you had will be entered into the record.

Mr. LOPEZ. Thank you.

[The statement of Mr. Lopez follows:]

Testimony of Rick Lopez, Deputy Secretary, New Mexico Department of Energy, Minerals and Natural Resources, on behalf of the National Association of State Energy Officials, before the House Interior and Related Agencies Appropriations Subcommittee, March 7, 1996

Mr. Chairman, members of the Subcommittee, I am pleased to have the opportunity to appear before you as you begin to consider the Department of Energy's Fiscal Year 1997 funding levels for energy programs. Today, I would like to address FY'97 funding for the State Energy Conservation Program (SECP) and the Institutional Conservation Program (ICP). These two programs are instrumental in providing affordable energy supplies for all Americans, in creating jobs and new industries through new energy technologies, and in the cost-effective minimization of environmental impacts associated with the use of some forms of non-renewable energy. These programs also reflect the energy priorities of each of the States and provide a vehicle for interstate cooperation.

We have also traditionally supported continued funding for the Weatherization Assistance Program, the Building Code Upgrade Program (Section 101 of the Energy Policy Act of 1992 (EPACT)), Municipal Energy Programs funded by the Subcommittee, the State Heating Oil and Propane Program (SHOPP), the Federal Energy Management Program and other enormously important Energy Information Administration activities, and we continue to do so today.

I am the Deputy Secretary of the New Mexico Department of Energy, Minerals and Natural Resources and am testifying on behalf of the National Association of State Energy Officials or NASEO. NASEO is an organization comprised of energy officials from 54 States, Territories and the District of Columbia.

Mr. Chairman, prior to FY'96 this Subcommittee had strongly supported continued funding for energy activities carried out through the States, including SECP and ICP. Your support and that of your colleagues on a bi-partisan basis had been critical to the success of State Energy Offices. We recognize that the Subcommittee's support is constrained due to the budget priorities that this Subcommittee had selected and the reduction in the Subcommittee's allocation for FY'97 and beyond. We indicated last year during our testimony and in conversations with staff that we wanted to work with you and your staff toward realizing a fiscally sound, cost-effective mix of research and delivery programs resulting in deployment of energy technologies that provides benefits to American consumers, businesses and industries. We continue to hold that philosophy today. Unfortunately, this Subcommittee cut these cost-effective and valuable programs by 50% by eliminating ICP. While program consolidation and increased flexibility is critical, a dramatic 50% cut has made it extremely difficult to deliver programs to help real people and to plan effectively to address our national energy problems. These programs are critical to addressing national needs.

Recognizing the monetary limitations of this Subcommittee and the desire of Congress and the American people to achieve a balanced budget, we request the Subcommittee fund SECP and ICP programs at 85% of the FY'95 funding levels in keeping with the FY'96 House Budget

Resolution. Consequently, SECP and ICP funding would amount to $45.1 million for FY'97. We also ask that deployment programs be treated equitably in comparison to R&D programs within your jurisdiction. The mission of the state energy offices is to deliver programs directly to the taxpayer. This mission was recognized by the language contained in last year's House Budget Resolution to fully support these state energy programs. This funding was also supported by the relevant authorizing Committee, the House Commerce Committee and the Energy and Power Subcommittee.

SECP and ICP, operated by State Energy Offices in conjunction with many other state-sponsored programs, have always offered a cost-effective, well-recognized deployment alternative to other, more costly methods of transferring technologies. In general, the ICP program provides our Nation's public and non-profit schools and hospitals with long over-due energy retrofits. Under the SECP program, States offer energy assistance to consumers, businesses and industries in the form of technical assistance, loans and specific energy information which leads to the adoption of new cost-effective energy technologies and services. ICP is a very rigid federal program in need of an overhaul, which, we are proud to say, is nearly complete through merging ICP into SECP and giving States flexibility. This type of flexibility is contained in the SECP authorizing language under the 1992 amendments to the Energy Policy and Conservation Act, which permits buildings programs to be operated without the extreme weight of existing paperwork. SECP is a well-adapted program which allows States to set their own energy funding priorities within accepted federal guidelines. Consequently, SECP and ICP have focused on different target participants in each State and have been highly successful. Highly successful is defined in terms of billions of dollars of energy savings and help to real people. These programs and the State Energy Office infrastructure are critical to our Nation's energy and economic development future, and the cuts approved in FY'96 are devastating.

In 1992, through EPACT, Congress began the changes which are resulting in dramatic restructuring of the electric utility industry. This restructuring is leading to a huge reduction of the commitment of utilities to demand-side management and energy efficiency programs, in a desire to compete more effectively with non-utility generators over energy prices. This large reduction in utility investments, in large part through congressional action, coupled with a 50% reduction in SECP/ICP, Weatherization, and large cuts in the Low-Income Home Energy Assistance Program (within the jurisdiction of the Labor, HHS Subcommittee) is creating a huge problem for American taxpayers and energy consumers. The energy programs represented by SECP/ICP and these other programs are critical to our energy future and we as a Nation are ill-prepared for the cuts imposed thus far.

For instance, under SECP, States offer specific programs which benefit commercial businesses, manufacturers (generally with less than 500 employees), homeowners, fleet operators and farmers. The range of services which SECP provides varies from recommendations for simple operational and maintenance changes (resulting in an average of 10-15% savings on utility costs) to loans for the purchase of state-of-the-art technologies designed to enhance a manufacturer's process efficiency, or rebate programs for homeowners designed to encourage the adoption of efficient technologies.

The SECP program is the catalyst for quite a number of successful applications of the Department's research and collaborative efforts. SECP is the driving force behind the adoption of voluntary Home Energy Ratings programs and Energy Efficient Mortgages. SECP programs provide technical assistance to businesses and industry. And, SECP programs provide energy education in our public schools. As a result of these efforts, the SECP program generates a great deal of non-federal investment in energy projects, averaging 19 dollars of public and private funding for every dollar of federal appropriation. It is important to stress, however, that the federal contribution is critical and produces a large amount of this leverage.

The following are a few examples of the types of projects which are made possible through the SECP and ICP programs:

The State of Mississippi is working with Alcorn State University to develop sustainable farming techniques for virtually every sector of agriculture. Poultry, pork and catfish farmers, rice growers, loggers and every participant in adding value to these commodities throughout Mississippi stands to benefit from the work which Alcorn and the Mississippi Energy Office are conducting to ensure that efficient technologies and practices are a component of the modern farm.

Colorado's Energy Conservation in Agriculture Program yielded $11.56 million in energy savings over five years at an initial cost of $1.35 million in oil-overcharge funds by reducing water usage, encouraging low-till, no-till techniques and by increasing the efficiency of tractors.

In New Mexico agriculture is a major energy and water consumer, using about 93 % of the water consumed. We have developed a broad range of energy projects to help farmers and ranchers reduce their operating costs through energy efficiency. SECP agricultural projects are now active in 25 of the State's 33 counties.

In New Mexico we have also implemented an energy efficiency program for State facilities in response to New Mexico's State Energy Policy. Approximately $1/2 million is saved annually as a result of this program.

Buoyed by increasing interest in efficiency as a result of successes in the ICP program, States are developing private financing programs to bolster declining funds for traditional grants to schools and hospitals. The 1995 ICP grant to Iowa of just under $500,000 resulted in the implementation of nearly $21 million (a leveraging of 42:1) of capital improvements in Iowa's buildings that are operated at taxpayer expense. By 2001, this one year $500,000 federal investment, will be returning a savings of $5 million each year. This is an example of the federal and state governments working in partnership to increase efficiency and responsiveness. Oregon, New York, Texas and Mississippi, like Iowa have used their limited federal resources to establish tax-exempt financing programs which reduce operating expenses for schools and hospitals.

Montana has developed a State loan pool for retrofitting State and Local Government buildings. Among the beneficiaries of this innovative program are the State National Guard Armories.

Nearly every State Energy Office in the country is active in the alternative fuels arena. Some are driven by the environmental benefits associated with alternative fuels. Others are driven by potential economic benefits provided by the use of alternative fuels. Whatever the reason, the SECP program provides the foundation for State alternative fuels efforts.

In New Mexico we have a very aggressive natural gas vehicle program which sets the framework for a statewide partnership between state and local governments, private industry, public schools and non-profits to encourage the use of alternative vehicle fuels. West Virginia and Texas are also quite energetic in the natural gas conversion area. In Nebraska and Iowa major efforts are underway concerning ethanol. And, in Wyoming, Idaho and Montana, research is becoming a reality as bio-fuels are blended with diesel fuel in order to reduce heavy-duty vehicle emissions.

The common link in all of these efforts is the SECP program which allows the States the flexibility to use their citizens' federal tax-dollars on programs and projects which provide direct benefits to the people of their State.

Through SECP my state has initiated a Recycling and Source Reduction Program whereby we have assisted local governments in solid waste management planning, waste reduction and recycling education, recycling project implementation and marketing of recyclables. SECP has also provided us the opportunity to operate a very successful public information program and quite a number of training and technical assistance programs.

We are extremely concerned with this nation's increasing dependence on foreign oil. With diminishing domestic petroleum product inventories we are now importing well over 50%. This alone makes a strong case for energy programs because this import dependence weakens our national defense, hurts our economy and places undue hardship on the poor. We are concerned, in this context, not only with dramatic State energy program cuts in SECP and ICP, but also with cuts in critical EIA data resources which we utilize every day. The State energy offices are the critical link, through SECP, in state, regional and federal energy emergency response.

In order to manage the limited funds available for continued energy efficiency efforts we must provide a well balanced research agenda and delivery mechanism. This delivery mechanism must be capable of reaching outside the confines of the beltway to those who benefit from the deployment of research in addition to providing benefits to those who conduct the research. State Energy Programs are the best delivery mechanism for achieving this balance. These programs have been and will, with your support, continue to be a pivotal component of the deployment equation. In the entire Department of Energy budget, there are less than $250 million in programs which provide a direct return to the American Taxpayer through the SECP, ICP and Weatherization Programs. Providing adequate funding for SECP, ICP and the Weatherization Assistance programs is the key to the success of this Subcommittee's energy efficiency efforts.

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

LIZA K. BOWLES, PRESIDENT, NAHB RESEARCH CENTER, A SUBSIDIARY OF THE NATIONAL ASSOCIATION OF HOME BUILDERS

Mr. BUNN. NAHB Research Center is next. Welcome.

Ms. BOWLES. Thank you. I'm Liza Bowles. I'm president of the NAHB Research Center, the wholly-owned subsidiary of the National Association of Home Buiders.

Since my statement will be entered for the record, I just wanted to emphasize a couple of programs that we're doing for the Department of Energy that have good benefits for the building industry as well as the housing consumer. As you probably know U.S. homes consume 15 percent of U.S. energy and account for 34 percent of the electricity demand. So there's a big benefit to the consumer and to the builder of increasing the energy conservation in housing.

We've been working with the Department for over a decade looking at new products and new systems and ways to increase energy conservation and one of the programs that we started last year, which I would like to draw your attention to, is a Energy Value Housing Award program. One of the problems with introducing energy conservation into houses, is that consumers always have choices on where to spend their dollars and very often they opt for the upgraded carpeting or the skylight or other features, rather than opting for energy conservation.

So what we have tried to do about this problem is take the builders who are incorporating good practices in energy conservation and design and bring those to the attention of the public through this program. We were very happy with the response that we got this year. We had over 100 applications; we had 20 some winners that went from national builders down to non-profit builders of low income housing. So we have a good cross-section of examples. We have good funding support, not only from DOE but from the utility interests as well as product suppliers. And we think that this is one approach to getting energy conservation to the attention, not only of the builder, but also to the home buying public and have them recognize that benefit.

Another program that I'd like to just briefly address this morning is a program that we do with research houses. In the building industry one of our big problems, lately, has been timber supply. And the quality of wood as well as the quantity and the price of wood has been a problem for builders and escalated the cost of housing. One of the alternatives is to go to different structural materials. Right now, over 90 percent of our houses are framed with wood. You start looking at other materials, how those houses are insulated and how to make them more energy conserving is a problem.

We have four townhouses that are under construction that we expect to complete in April. That's out in Bowie, Maryland. I invite anybody to come out and see them. They are all out of different structural materials and we will be monitoring those through a heating and cooling cycle and get a better understanding as to how to get the best energy conserving practices out of these new materials.

The third area I would just like to briefly mention is in the area of ducts in houses. The heating and cooling loads in houses, in 90 percent of new houses, is distributed through a duct system. The Department of Energy estimates that over $6 billion is lost through poorly constructed and poor materials used in ducts. We have a current project going on with support from DOE, the Gas Research Institute and others in the industry, to look at this problem and get best practices out to industry which we expect will have great energy conserving benefits to the home buyer in the future.

So these are examples of the things we do for the Department of Energy and I would urge your consideration to continue these efforts. Thank you.

Mr. BUNN. Thank you very much.

[The statement of Ms. Bowles follows:]

STATEMENT
by
LIZA K. BOWLES
PRESIDENT
NAHB RESEARCH CENTER
SUBSIDIARY
THE NATIONAL ASSOCIATION OF HOME BUILDERS
before the
INTERIOR AND RELATED AGENCIES APPROPRIATIONS SUBCOMMITTEE
U.S. HOUSE OF REPRESENTATIVES
on
DEPARTMENT OF ENERGY
FY 97 APPROPRIATIONS

March 7, 1996

Mr. Chairman and Members of the Subcommittee:

I am Liza K. Bowles, President of the NAHB Research Center, which is a wholly-owned subsidiary of the National Association of Home Builders.

I appreciate this opportunity to discuss issues in home building and home energy usage that relate to the FY 97 appropriations for the Department of Energy (DOE). Home building and home usage constitute one of our largest potential areas for national energy saving.

First, U.S. homes consume 15 percent of all U.S. energy, and account for 34 percent of U.S. electricity demand.

Second, once a house is built in this country, it lasts and is used for an average of 75 years. Each home in which even a modest reduction in energy use is achieved, makes a real contribution to national energy conservation over its life span.

Third, unlike many areas of potential energy savings, energy-efficient home building and energy-efficient home use are issues that can be greatly impacted by the behavior and motivation of many persons in their everyday activities and everyday living.

The NAHB Research Center's Work for the U.S. Department of Energy

The NAHB Research Center carries out a number of programs for achieving energy conservation in the building of homes, and in the way people live in their homes. A portion of the funding for these programs is provided by the U.S. Department of Energy. We are happy to report that we are able to leverage DOE's seed money, so that a large and increasing proportion of the funding for these projects comes from private sources.

I would like to describe a few of our programs in energy-efficient housing, and what the programs are achieving.

The EnergyValue Housing Awards

In 1995, we created a national awards program for builders who integrate energy efficiency into all aspects of home building. The entries were judged on such issues as site planning, design, innovation, resource-efficient building, and energy performance of the completed house.

The entrants were also judged on how well they use energy efficiency as a tool for marketing their homes, and how well they relate to the interest of home buyers in energy conservation. This reflects the basic philosophy of the Total Quality Management Programs that we operate for builders. These programs use maximum customer satisfaction as the yardstick for measuring all aspects of a builder's operation. But it also reflects our desire to involve both builders and buyers in a joint effort to create a new generation of highly energy-efficient homes.

We were astonished by the quantity, quality, and diversity of the entries in the competition. In January 1996, we presented EvergyValue Housing Awards to the 21 top entrants, in ceremonies at the NAHB Annual Convention. The award-winning practices of these winners included both technical innovations, and a broad array of ingenious marketing techniques designed to get the public interested and involved.

The information generated by the competition was widely disseminated. Practices of the award winners were described in detail in the professional home building press. We also disseminated the information to real estate editors and newspapers throughout the country.

We are putting this award competition on a permanent annual basis. As a result, builders will have access to a large and growing body of information about successful energy-efficient home building methods. Home buyers will also become better informed, which means that energy-efficient home building will respond to real, well-informed public demand.

The 21st Century Townhouses

In April, we expect to complete the group of four 21st Century Townhouses that we are building in the NAHB Research Home Park. These houses illustrate two themes: alternatives to lumber in home construction, and innovative approaches to advanced energy efficiency. None of the houses is framed with wood. Instead, each house utilizes a different innovative structural system. The systems are:

- House #1: Structural insulated panels.
- House #2: Concrete forming system.
- House #3: Steel framing.
- House #4: Aerated concrete units.

These systems all show promise as substitutes for traditional wood framing. However, we do not know nearly as much about their energy performance as we do about the performance of wood construction. We are working to close this important information gap. After the houses are finished, we will conduct a full analysis of the energy performance of each structural system, in both winter and summer. This information will be made available to builders and the public.

To secure broad input, we will also conduct focus groups in the houses. Participants will include builders, members of the building trades, real estate salespersons, and potential home buyers.

The 21st Century Townhouses Project is one of the projects that, together, comprise our Advanced Housing Technology Program.

Advanced Technology Housing Program

The purpose of the Advanced Housing Technology Program (AHTP) is to expedite the entry of useful innovative products, systems, and technologies into the mainstream of U.S. home building. A substantial majority of these innovative materials and systems relate to energy conservation. In addition to the 21st Century Townhouses Project, AHTP activities include:

- **An Innovative Products Database**. This database currently contains information on more than 1,500 new and innovative home building products, and is continuing to grow. We will be putting it on-line. We are already receiving 500 queries a year on products described in the database.

- **A New Building Products Newsletter**. This is designed to keep builders and other home building professions well informed on important developments on the frontiers of technology.

- **Case Studies**. These consist of detailed examination of new products that appear to have special value and promise.

Photovoltaics

Photovoltaics, usually called PV, is the generation of electricity from sunlight. Its use in homes has important implications for national energy conservation. We are conducting a research program to address three issues associated with PV: cost, technology improvement, and integration of PV systems into house design.

This spring, we will install an innovative PV system on the roof of one of the 21st Century Townhouses. The system employs flexible modules that have the appearance of standard roofing products and that can serve both as roofing and as solar collectors. The system is expected to contribute between 50 percent and 75 percent of the house's 120-volt requirements, exclusive of space conditioning, cooking, and water heating. The electricity can be used during on-peak periods, to reduce both energy demands of the home and energy cost to the home owner. It can also be used as a source of backup power if there is a power outage.

We need to push the frontiers of this technology, and bring it into the housing mainstream as soon as possible.

Ductwork in Homes

Heating and air conditioning ducts are not as glamorous as photovoltaics, but they involve big energy stakes. Ducts provide thermal distribution in 50 percent of all U.S. homes and 90 percent of new homes. The U.S. Department of Energy estimates that the value of energy lost through design or mechanical deficiencies on such systems approaches $6.20 billion per year. Principal problems include design deficiencies, excessive leakage, and heat loss and gain from ducts that pass through unconditioned spaces such as attics and crawl spaces.

We are conducting a program to improve duct energy efficiency in new residential construction. Builders in a number of states are making new homes under construction available to us for data collection by researchers on our staff. In addition, we will test the thermal efficiency of duct systems that are installed in the 21st Century Townhouses. Special studies will be conducted in one of the houses in which we have installed redundant duct systems to facilitate comparative studies with different arrangements and configurations.

At the conclusion of the studies, we will publish a "best practices" manual for builders, which will provide builders with information that will enable them to determine the best value for their customers.

Cost Leveraging

As our DOE-funded programs expand, our leverage of DOE funds through cost-sharing with private sources of support becomes increasingly successful.

In FY 1994, in the Advanced Technology Housing Program, DOE's funding contribution was 39.5 percent of the total raised and spent, and the private contribution was 60.5 percent. In FY 1995, DOE's share dropped to 22.6 percent, and the private contribution rose to 77.4 percent. In specific project areas, the private contribution is even higher. Nearly 80 percent of the funding for the Townhouses Project nearly 90 percent of the funding for case studies represents private contributions.

DOE and Energy Savings in Housing

We strongly encourage Congress and DOE to expand their work in the field of energy conservation, with the industry that produces housing. The figures show we can leverage every public dollar that DOE invests in our programs, at ratios that average four to one. The National Association of Home Builders and the NAHB Research Center wish to work with DOE and Congress to increase the energy efficiency of homes and home building, and to achieve the great energy savings that can be realized through research, technology transfer, and the creation of marketplace acceptance for energy-saving technologies in this highly important sector of our economy.

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

JOHN NIMMONS, MANAGING DIRECTOR, ALLIANCE TO COMMERCIALIZE CARBONATE TECHNOLOGY

Mr. BUNN. John Nimmons, Alliance to Commercialize Carbonate Technology.

Mr. NIMMONS. Good morning, Mr. Bunn. Thank you very much.

Mr. BUNN. Good afternoon.

Mr. NIMMONS. Good afternoon. Thank you for the opportunity to testify.

My name is John Nimmons. I'm managing director of the Alliance to commercialize Carbonate Technology which for obvious reasons we refer to as ACCT. We're here to support M–C Power's request for $40 million in funding of the DOE molten carbonate fuel cell program for Fiscal Year 1997. ACCT is a working alliance of industries and utilities created to help bring molten carbonate fuel cell technology to commercial markets by the year 2000. Its principal focus is the IMHEX technology under development by M–C Power, Stewart & Stevenson, the Institute of Gas Technology, and the Bechtel Corporation.

The members of ACCT include some of the Nation's leading gas and electric utilities, natural gas pipelines, and industries from all over the country. With our written testimony we've submitted a list of our current membership and I think you'll see that it represents every region of the country and every kind of energy utility. I won't take the time to repeat our written testimony, but I would like to highlight three points.

The first is that utilities and industry are increasingly excited by molten carbonate technology and especially the M–C Power program. As the technology advances and as de-regulation of the utility proceeds, they see de-regulation as creating potentially very exciting opportunities for distributed generation, that is small scale electric production other than central station production over the long term. That's the good news.

My second point is the not-so-good news, which is that deregulation and the prospect of deregulation, has created enormous upheaval and uncertainty in the electric industry as I'm sure you know. And the result is that utility R&D funding has all but dried up while utilities are trying to re-examine where they are going and what role they're going to play in future energy markets.

The third point that I want to emphasize is that now that the molten carbonate developers have gained the attention of the utilities and industry, and have moved their technology into the public view, it's more important than ever for the Federal Government to follow through with timely and dependable R&D support previously committed to these long term programs through DOE. It's very, very important to our members that the development teams stay on schedule, that they meet the milestones that they've announced publicly, and above all, that they build credibility that's needed to inspire private investment once the technology is beyond the R&D stage so that the private sector can take it into the market.

We're in a process now, a very critical time over the next couple of years, of building confidence that the developers can in fact bring the technology to the point where we'd all like to see it. And that's very hard to sustain if funding comes in spits and starts. So those points are that the utility interest is very high, that private sector R&D is at a new low because of uncertainty associated with de-regulation and that timely and dependable Federal support is more important now than it ever has been in this area.

Returning briefly to the first point, when we spoke to the committee last year at this time, we had just reorganized ACCT and spun it out of the M–C Power group to become an independent organization and provide more effective support. At that time I think we had 12 members who had joined within the first couple of months. Now we have 18 official members on the list that you have and another two who have joined in the last week and we've got about five who are proposing to join, and we expect this trend to continue.

The reason that there is this kind of growth right now is that there's a lot of interest in this technology and these members would very much like to see it get to the point where the private sector can take it over.

Returning to the second point, I can't overemphasize the difficulties that the prospect of deregulation has created in the short run for R&D in the utility industry. Until now, utilities have been major non-Federal contributors to R&D; at this stage we're not sure how they're going to operate, what they're going to look like, whose going to be doing generations, whose going to be doing something else. It's clear that it's going to continue; somebody's going to have to be doing generations, somebody's going to have to be getting those technologies out there.

But the utilities aren't certain what their roles are going to be and it makes it very hard to put in R&D money which is at risk, which they may not be able to recover from rate-payers in a changed environment. So that affects programs like this one that have been ongoing for a long time. We're right in the middle at the most critical time for this program and it happens to also be a time when it's very, very difficult to get R&D funding from the utility industry.

And, finally, just to return to the third point, I just returned from our annual meeting of the ACCT group yesterday. And what happens at those meetings is that the developers set out the schedule for development. They have slides and view graphs and every other means of showing people when they're going to do things and what they are going to do. What happens when funding is delayed or reduced, is that all of a sudden those milestones aren't met. And the goals aren't met, and the industry takes a look and says there's something wrong with the developer. And what's really wrong is that there isn't the cash flow to keep the promises that they've made.

So, from the industry's point of view it's very, very important that what they're told they'll see is what they'll see, and that can only happen if funding continues at the levels that have been requested. So we very much support M–C Power's request and we thank you very much for the opportunity to testify.

Mr. BUNN. Thank you.

[The statement of Mr. Nimmons follows:]

ACCT

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TESTIMONY OF JOHN T. NIMMONS
MANAGING DIRECTOR
ALLIANCE TO COMMERCIALIZE CARBONATE TECHNOLOGY

Submitted To The

HOUSE APPROPRIATIONS SUBCOMMITTEE
on
INTERIOR AND RELATED AGENCIES

March 7, 1996

Mr. Chairman and Members of the Subcommittee, my name is John Nimmons. I am submitting this testimony as Managing Director of the Alliance to Commercialize Carbonate Technology ("ACCT"). Its purpose is to support FY97 funding of the Department of Energy's molten carbonate fuel cell ("MCFC") program in the amount of $40 million.

ACCT is a working alliance of utilities and industry, created to help bring MCFC technology into commercial markets by the year 2000. Its members are potential purchasers, installers and users of MCFC power plants. From ACCT's formal incorporation just 15 months ago, its membership has grown to include twenty of the nation's leading electric and gas utilities, natural gas pipelines, and industries from all regions of the country, as well as the nation's foremost electricity and natural gas research organizations. Its membership has increased by over 30% in just the past quarter, and continues to grow as utilities and industry recognize the promise of MCFC technology. ACCT's principal focus is the IMHEX® MCFC power plant under development by the team of M-C Power Corporation, the Institute of Gas Technology, the Bechtel Corporation, and Stewart & Stevenson Services, Inc. (the "Development Team").

ACCT wishes to make the following points before this Subcommittee, each elaborated further in the testimony that follows:

1. Ultra-clean, super-efficient, modular, small-scale MCFCs offer unique benefits well suited to competitive electricity markets emerging from current federal and state regulatory initiatives.

2. The next several years are critical ones for U.S. MCFC technology development, and for building the industry confidence needed to supplant federal R&D funding with private financing.

3. Private dollars which historically funded promising energy technologies through the high-cost, high-risk phase now confronting MCFCs continue to decline because of intense competitive pressures and pervasive uncertainties caused by electric utility restructuring.

4. FY97 funding of previous federal commitments remains vital to ensure that MCFC developers meet announced milestones and maintain the credibility they need to inspire industry confidence and attract private investment as MCFC technology nears commercial readiness.

1. MCFCs Offer Unique Benefits For Emerging Competitive Electricity Markets

MCFCs offer dramatic efficiency and environmental advantages over both conventional generating technologies and other types of fuel cells. These advantages will be increasingly important as electricity supply continues to evolve from large central station generation plants to smaller, cleaner, more flexible power plants located near the customers they serve, and avoiding the risks and costs of major infrastructure investments in uncertain times.

ACCT

Mature MCFC power plants are expected to convert fuel to electricity at up to 60% efficiency. This compares with about 50% for advanced utility-scale combined cycle plants, and only 30-40% for more conventional central station power plants. However, few U.S. utilities any longer plan to build power plants large enough to achieve even these efficiencies.

Utilities planning new capacity generally expect to add it in much smaller increments, where central station fuel efficiencies are impossible to achieve with conventional technologies. Many utilities are moving toward "distributed" power plants that range from less than one megawatt to perhaps 50 megawatts, with most falling under 20 megawatts. In this range, turbine efficiencies typically fall to 30% or less -- *about half that of comparably sized MCFCs* -- with emissions characteristics likely to prevent siting in many distributed settings. High-efficiency MCFCs used in these settings will not only conserve primary energy sources and improve air quality, but will reduce energy costs for American businesses and make them more competitive in world markets.

For many utility and industrial applications, MCFCs also offer distinct advantages over other types of fuel cells now under development. For example, MCFCs promise as much as 50% higher fuel conversion efficiencies than phosphoric acid fuel cells ("PAFC") now entering the market, with even lower air pollutant emissions -- amounting to *less than 10% of current federal air quality standards*. Moreover, MCFCs can produce much higher quality heat as a byproduct of electric generation than that produced by PAFCs, so they are especially suitable for utility and industrial cogeneration uses that PAFCs cannot serve.

MCFCs are also far less sensitive to fuel contaminants than, for example, polymer fuel cells. For this reason, MCFCs are expected to operate well not only on natural gas, but on *domestic renewable fuels* such as landfill gas and methane from sewage digesters. Indeed, these are viewed as among the most promising commercial markets for MCFCs, and the IMHEX® Team is already planning to test its technology in a large digester application.

For these and other reasons, a number of ACCT companies that remained on the sidelines of PAFC and other fuel cell efforts are now actively supporting MCFC development programs.

2. The Next Several Years Are Critical for MCFC Development and for Creating Industry Confidence

Many important milestones have been achieved in MCFC development. However, they remain early steps in the continuing development process needed to bring the technology to the point where the private sector can take over. The steps that must occur over the next several years will determine whether MCFC technology fulfills its promise, both technically and commercially.

To reach its goal of a commercial MCFC power plant by the year 2000, the IMHEX® Development Team -- in partnership with the U.S. Departments of Energy and Defense, state and local governments, private research organizations, and investor-owned gas and electric utilities -- has established a careful and deliberate sequence of research, development, and power plant testing to occur between now and 1999. The next major milestone in this sequence is to test a first-of-a-kind 250 kW fuel cell power plant now being installed at San Diego's Miramar Naval Air Station. This plant will incorporate a new design and specialized new components, and will be the first functionally integrated IMHEX® research power plant. Many ACCT members view this test as a watershed, whose outcome will substantially determine future levels of industry interest and support.

Once the San Diego tests are completed, the power plant must be scaled up fourfold to the one-megawatt size planned for commercial deployment, while substantially reducing its costs through design and materials innovations. The Development Team then plans two or more cost-shared, one-megawatt field tests. These are needed to establish plant performance, reliability, and durability under a range of climatic conditions, fuel types, and operating regimes critical to ACCT's utility and industry members, and to other potential purchasers and users.

Every phase of this effort, from advanced materials research through manufacturing improvements through demonstrations, is planned to include substantial private-sector cost sharing. However, the magnitude of the undertaking and the risks it necessarily entails are beyond the means of individual ACCT companies, which now find it necessary to reduce expenditures across the board to prepare for competition in a deregulated environment. MCFCs promise important societal benefits in the form of resource conservation and efficiency, environmental improvements, lower energy costs for consumers, and an enhanced competitive position for U.S. industries. For these reasons, FY 97 federal funding at the level requested by the IMHEX® Team is not only entirely appropriate: it is essential to advance the technology and help U.S. firms compete in world energy markets over time.

3. Private Energy RD&D Remains in Jeopardy as Utilities Face Competition and Utility Restructuring

ACCT participants include a range of private sector businesses that expect to implement MCFCs once they prove commercially viable. However, the regulatory regimes in which many ACCT members now operate, and the competitive environments into which they are being thrust, strongly discourage even medium-term RD&D. This is especially so for efforts focused as much on public benefits as on private ones, or which cannot pay for themselves within a few years — an impossible hurdle for RD&D of this cost and complexity, no matter what its societal value.

In the year since we last appeared before this Subcommittee, more U.S. utilities have "restructured" their R&D departments out of existence or drastically reduced their resources, while simultaneously curtailing support for industry research organizations such as the Electric Power Research Institute and the Gas Research Institute. This may be a rational response to prevailing regulatory and competitive pressures, but it still represents an alarming retreat for an industry that historically has been by far the largest non-federal contributor to advanced energy technology R&D.

As we have stressed before, *reduced support for advanced technology RD&D does not reflect on the value of these efforts, but on the utilities' uncertainty about recovering their RD&D expenses through rates in a restructured regulatory environment.* On the other hand, utilities cannot freely invest shareholder dollars in high risk technology development, since their investors typically seek lower risk profiles than these investments entail. Yet utilities and their customers remain the most direct conduits through which MCFCs and other advanced technologies can deliver the societal benefits they promise — and however valid their reasons for slashing RD&D expenditures in today's environment, the unfortunate effect on MCFC development is the same.

For these reasons, ACCT's leaders believe it is vitally important to continue federal RD&D support through the next several critical years, until the early costs and risks of the technology can be reduced to levels acceptable to private companies operating in highly competitive markets. To do otherwise would be to abandon substantial public and private investments already in place, and to forego the important economic, environmental, and competitive advantages that advanced fuel cell development can deliver.

4. Continued and Dependable Funding of Previous Federal Commitments is Vital To Preserve the Credibility of MCFC Development and Attract Needed Private Capital

ACCT's mission includes building industry confidence in MCFC technology, and developing a framework for early purchase commitments to shepherd it into the marketplace. ACCT members have and will continue to work with the IMHEX® Team to help it meet its development milestones, because they believe this is critical to create private sector confidence and position the technology for success once its development is complete.

MCFC developers, including the IMHEX® Team, must continue to depend significantly on federal support until the most formidable development risks are overcome. When support committed subject to appropriations is not forthcoming or is delayed or reduced — as it frequently has been in recent times — development and testing are correspondingly delayed. These delays are painfully visible to the industry whose confidence ACCT and the IMHEX® Team are trying to build. Unfortunately, outside observers of the development effort often perceive this simply as the developers' failure to meet schedules, when in fact it reflects an inability to proceed without the cash flow they fairly expect and vitally need.

Even assuming that the federal budget impasse is soon resolved, and even with its share of the FY96 funds voted by both House and Senate appropriators, we understand that the IMHEX® effort will receive about 20% less than the amounts provided for in its Product Design and Improvement contract with the Department of Energy for this year's effort. We also understand that delays due to federal budget negotiations have already caused substantial schedule concerns. Further reductions below contractual expectations, and further delays from any source, would threaten private sector confidence in the development effort and discourage the very private investment needed not only to satisfy the government's own cost-sharing requirements, but to ensure longer-term success that will more than justify the federal expenditures already made.

ACCT continues to believe that industry confidence is the key to increased private sector involvement as development efforts succeed in reducing the risks of societally useful technologies to the point where industry can afford to proceed. In building that confidence, ACCT cannot overemphasize the importance of continuous, uninterrupted, financial support to MCFC developers that will permit them to meet their development schedules and achieve their announced milestones. To help MCFC developers make up for lost time and proceed on track, ACCT supports M-C Power Corporation's request that the Subcommittee recommend $40 million for the Department of Energy's FY97 molten carbonate program.

In summary, ACCT continues to believe that MCFCs can offer real efficiency and environmental advantages over other power generation technologies for applications important to member companies and their customers. Much development work is still needed to bring this technology forward, and uncertainties created by industry restructuring make that much harder to fund through private sources than in the past. Unless federal funding continues at needed levels and on reliable schedules, industry confidence will erode, and with it the fruits of a productive partnership between the Federal government and the private sector that has already invested much to deliver the benefits of MCFCs to the nation and its citizens.

I am grateful to the Subcommittee for this chance to present our views, and I thank you on ACCT's behalf.

THURSDAY, MARCH 7, 1996.

OSM

WITNESS

WILLIAM D. DUTY, SUPERVISOR, GUYAN SOIL DISTRICT, WEST VIRGINIA SOIL CONSERVATION DISTRICT SUPERVISORS ASSOCIATION

Mr. BUNN. William Duty, West Virginia Soil Conservation District Supervisory Association.

Mr. DUTY. Thank you, Mr. Chairman. It's a privilege to appear before you this morning for my first and only time.

I come as a volunteer from the West Virginia Soil Conservation Association. This testimony is given to you this morning to address the issue of the Rural Abandoned Mine Program. In 1977 Congress passed this act, because of some of the atrocities that were, in the past, committed by coal mines that left our areas in a deplorable condition, to rectify those by reclamation. I have in my hand a piece of coal that I picked up adjacent to my property. I live in the heart of the billion dollar coal field in southern West Virginia. I had previously worked in coal mines and for almost 65 years I have seen the extraction of coal mining and what it does—the good and the bad.

I'm told that it takes approximately 1 million years to make this piece of coal. It took me about five minutes across the creek from my house to extract this from the hillside. Last year in 1995, as my testimony will show by the National Mining Association, more than 1.27 billion tons of this coal was extracted from 15 states. This year, 1996, that figure will increase to 1.44 billion tons. That's going to bode well for West Virginia, for our Nation, and for our global economy.

However, we know that in this practice there are many, many things that we have to address, one being the 35 cents per ton, 15 cents per ton for underground, 35 above ground funding that is sent here to Congress to be appropriated back to address these problems. We feel, in West Virginia and in the 15 other coal producing states, that we desperately need this money to address the issue of reclamation.

Great strides have already been made, but we have much yet to do. I'd point out that I have lived with water and I have seen mountain streams near my home run as clear crystal, and I have seen them turn black overnight, as black as this lump of coal. Now when I left Tuesday I was watching the same stream that I had looked at for 50 years running red as blood. Much of this is attributed to coal mining prior to 1977.

So today I am asking this committee that it would again look at the opportunity that it has to work with the Soil Conservation Committee because we are a volunteer group, because we do have the technical assistance, because we do know the local land owners and we know the small—if you would look at those pictures in the brochure that I gave you, one on the back in particular I can see from my window of an open portal, on the back page. Well that one right there is the red, but on the main back page, a portal that I can see from my kitchen and my grandchildren playing near it, that picture right there, from my window I see that and I know that mine worked there 50 years ago and it would not take much to address these issues. The difference being between the rural abandoned mines and the AML is that we have people in place in local levels working with land owners who know the dangers and these problems.

So I submit to you, in closing today, that as we look at this, that nobody, none of us, will ever have made a greater mistake than that person who does nothing because the only thing he can do is a little. And I attribute that to the quote by Edmund Burke. And I think that's where we stand today. There's much to be done. But we can do a little, so we are asking that this year the Rural Abandoned Mine Program be appropriated the $25 million, and we understand there's $110 million in the fund that has already been collected for this purpose, but we're asking for $25 million to keep us up and going and we hope that you would give attention to that. Respectfully and concerned, I'll close.

Mr. BUNN. Thank you very much.

[The statement of Mr. Duty follows:]

Congressman Ralph Regula, Chairman
Appropriations Subcommittee on Interior
B308 Rayburn Building
Washington, D. C. 20515

West Virginia Soil Conservation District Supervisors Association
By William D. Duty, Supervisor, Guyan Soil District
2631 Fifth Street Road, Huntington, WV
In testimony before the Appropriations Subcommittee on Interior and Related Agencies

This testimony is given to address funding for the Rural Abandoned Mine Program (RAMP)

With this testimony we are requesting that twenty-five (25) million dollars be allocated for Rural Abandoned Mine Program.

Coal mining has been and continues to be a vigorous and beneficial activity in Southern West Virginia. Coal mining has been one of our principal economic activities for approximately one hundred (100) years.

According to the National Mining Association, the coal industry in the United States produced 1.27 billion tons of coal in 1995 and is expected to produce 1.44 billions in 1996.

Coal mining has benefited West Virginia and the United States as well as the global economy. However, coal mining has created numerous health and safety hazards, polluted thousands of miles of our streams, and left over one million acres of our land in a barren and wasted condition.

In 1977 the Rural Abandoned Mine Program was authorized for the purpose of reclaiming the soil and water resources of rural lands adversely affected by past coal mining activities.

The program is funded by contributions from all active mines at the rate of $0.35 per ton for coal mined above the ground and $0.15 per ton for deep-mined coal.

The fund is increasing each year because Congress has not authorized an amount to be spent on reclamation equal to the amount that is collected each year.

Currently, there are fifteen (15) states with active Rural Abandoned Mine Programs. Historically, 1,397 RAMP applications have been serviced through and including 1994, resulting in the reclamation of 17,542 acres of land.

The current total AML fund now exceeds one billion dollars. The current level of accumulation for the RAMP portion of the AML fund is approximately one hundred million dollars. This money cannot be spent for any purpose other than the Rural Abandoned Mine Program.

The FY-96 budget has no funding allocated for RAMP. All design and planning work for this program has been halted. There is still a very large amount of work to be accomplished

It is incumbent that RAMP be funded now and in the future. Watersheds are being planned to reclaim whole drainage areas at once. This would provide significant improvement to many miles of our streams and would eliminate hazards in the countryside.

With respect and concern,

William D. Duty

William D. Duty, Supervisor
Guyan Soil Conservation District

Mr. BUNN. That concludes our testimony for this morning. We will recess until 1:30 when we will resume the hearing.

THURSDAY, MARCH 7, 1996.

OCS

WITNESS

TOM EDWARDS, CITY OF NEWPORT BEACH

Mr. NETHERCUTT [presiding]. Forgive me for being late. We had a vote on, and I was running.

We'll go to the city of Newport Beach, Tom Edwards. Thanks, Mr. Edwards. Sorry to keep you waiting today.

Mr. EDWARDS. Oh, no problem.

Mr. Chairman, members of the subcommittee, thank you for the opportunity to address this committee. I am Thomas Edwards, a member of the Newport Beach City Council in southern California, and I'm here today to express California local government support for the continuation of the Outer Continental Shelf oil and gas leasing moratorium as it applies to California in the Fiscal Year 1997 Interior appropriations bill. I understand that the moratorium issue is one of great controversy, and we respect that there are strong feelings on both sides of the issue.

We strongly support the continued extensive offshore oil and gas protections that have been established since 1982 without any perceptible impact on national energy security. Additionally, existing leasing restrictions leave more than three-quarters of the Nation's undiscovered economically-recoverable offshore oil reserves open to exploration and development.

We believe that years of environmental and economic impact analysis demonstrate that unacceptable adverse conditions could result from the expansion of existing offshore oil development and operations. The visual impact of the offshore platforms is a continuing concern among our coastal communities who rely on tourism. The tourism and recreation industry in California is the State's largest employer. In Newport Beach alone, tourism generates over $1 million a day during summer months. In addition, the potential increased number of platforms, exploratory rigs, and support vessel activity would present a navigation risk to southern California maritime traffic.

Increased exploration, production, and transportation activities have the potential to threaten our air quality, as well as heighten the risk of oil spills. The ecosystem degradation caused by the additional oil and gas development could impact marine protected areas in both State and Federal waters, including sanctuaries, seashores, reserves, preserves, and the like.

Many of these issues, about the impacts of offshore oil and gas operations, remain unresolved. For example, the Department of Interior Minerals Management Service has yet to adequately address the questions about the substantial data and information gaps in leasing information identified by the National Academy of Sciences. The Academy report requested by President George Bush suggested numerous data gaps that should be filled before a decision should be made to lease new frontier areas off the coastline of California. It is the opinion of many southern California local governments that the risks of future leasing are too great, especially in light of the huge contribution that ocean and coastal tourism makes for the California economy, estimated at more than $27 billion annually and growing.

Are we being selfish about this position? We don't think so. It is important to note that California is already making a substantial contribution to United States energy production. California is actively pursuing the production of onshore reserves within the State, which add up to nearly 3.4 billion barrels, close to 2 percent of U.S. reserves. By contrast, proven reserves within the Federal OCS offshore California are substantially less, at an estimated 726 million barrels.

Although measurable, both these onshore and offshore reserves are relatively insignificant when compared to other U.S. and worldwide sources. In addition, California contributes to energy independence in other ways. With the utilization of sound energy conservation principles, California uses one-third less energy per unit of economic output than the rest of the Nation.

While a preferred option is to obtain an authorization for a permanent moratorium on drilling on the Outer Continental Shelf, that is not possible presently through the respective authorizing committees. We are, therefore, left with no alternative but to seek annual continuations of the moratorium in the Interior appropriations bill.

In light of these continuing concerns, high risks, and minimal contributions that new OCS leasing in California has to offer the State and the Nation, we recommend and respectfully request that the California planning areas continue to be included in an OCS moratorium in the 1996–97 Interior Department budget.

Now is not the time to reverse 15 years of Federal policy to protect environmentally-sensitive coastal areas from the impacts of increased offshore oil development. It is as important today as ever for the future of our great State.

Thank you again for the opportunity to provide this testimony.

Mr. NETHERCUTT. Thank you very much, and your prepared testimony will be part of the record.

Mr. EDWARDS. Thank you, Mr. Chairman.

Mr. NETHERCUTT. One quick question, do you have some offshore drilling at this time?

Mr. EDWARDS. No, we do not. We do, however, have a city directly north of us, Huntington Beach, which does have some, and in 1990 they experienced a spill which washed onto our seven miles of coastline. We are still in the process of debating how the money will be allocated, who will receive what for the purposes of that cleanup.

Mr. NETHERCUTT. Federal money?

Mr. EDWARDS. State.

Mr. NETHERCUTT. Okay, thank you very much.

Mr. EDWARDS. Thank you very much, Mr. Chairman, and thank you for your support.

Mr. NETHERCUTT. You bet.

[The statement of Mr. Edwards follows:]

Testimony of City Councilman Thomas C. Edwards
for the City of Newport Beach, California
to the Interior Subcommittee
of the House Appropriations Committee

March 7, 1996

Mr. Chairman, Members of the Subcommittee:

Thank you for the opportunity to address this committee. I am Thomas C. Edwards. I am a member of the Newport Beach City Council. My testimony today is on behalf of all thirty-one Orange County cities as well as other California communities up and down the coast that are concerned about the expansion of oil and gas development on the Outer Continental Shelf (OCS). I understand that the moratorium issue is one of great controversy and we respect that there are strong feelings on both sides of the issue. I am here today to express California local government support for the continuation of the OCS (Outer Continental Shelf) Oil and Gas Leasing Moratorium, as it applies to California, in the Fiscal Year 1997 Interior Appropriations Bill.

It is the opinion of Newport Beach and many of our neighboring cities, that additional leasing is not warranted now, nor at any time in the near future off the California coast. We believe that lifting the Congressional OCS Moratorium now, will send confusing signals to both industry and those concerned with the impacts of OCS oil and gas development. We strongly support the continued extensive offshore oil and gas protections that have been established over many years for California's offshore waters. Restrictions have been in place since 1982 without any perceptible impact on national energy security. Additionally, existing leasing restrictions leave more than three quarters of the nation's undiscovered economically recoverable offshore oil reserves open to exploration and development.

We believe that years of environmental and economic impact analysis demonstrate that unacceptable adverse conditions could result from the expansion of existing offshore oil development and operations. The visual impact of the offshore platforms is a continuing concern among our coastal communities, especially those with a strong tourism economy. The tourism and recreation industry in California is the state's largest employer. In Newport Beach alone, tourism generates over one million dollars a day during the summer months. In addition, the potential increased number of platforms, exploratory rigs, and support vessel activity would present a navigation risk to southern California maritime traffic.

The dumping of drilling muds and cuttings may effect the water column and bottom communities which support our recreational fisheries. Increase exploration, production, and transportation activities has the potential to threaten our air quality, as well as heighten the risk of oil spills.

The ecosystem degradation caused by the additional oil and gas development could impact marine protected areas in both State and Federal waters, including sanctuaries, seashores, reserves, preserves, refuges, underwater parks, and areas of special biological significance. Many of these issues about the impacts of offshore oil and gas operations remain unresolved. For example, the Department of the Interior's Minerals Management Service has yet to adequately address the questions about the substantial data and information gaps in leasing information identified by the National Academy of Sciences. The Academy report, requested by President George Bush, suggested numerous data gaps that should be filled before a decision should be made to lease new frontier areas off the coastline of California.

It is the opinion of many Southern California local governments that the risks of future leasing are too great, especially in light of the huge contribution that ocean and coastal tourism make to the California economy, estimated at more than $27 billion annually.

Are we being selfish with this position? The answer, in our opinion is no. It is important to note that California is already making a substantial contribution to United States energy production. California is actively pursuing the production of onshore reserves within the state which add up to nearly 3.4 billion barrels, close to 2 percent of U.S. reserves. By contrast, proven reserves within the federal OCS offshore California are substantially less at an estimated 726 million barrels according to the California Division of Oil and Gas (1993).

Although measurable, both these onshore and offshore reserves are relatively insignificant when compared to other U.S. and worldwide sources. In addition, California contributes to energy independence in other ways. With the utilization of sound energy conservation principles, California uses one-third less energy per unit of economic output than the rest of the nation.

Our preferred option is to obtain an authorization for a permanent moratorium on drilling on the Outer Continental Shelf. However, this option has been precluded by the respective authorizing committees. We are, therefore, left with no alternative but to seek annual continuations of the moratorium in the Interior Appropriations bill.

In light of these continuing concerns, high risks, and minimal contributions that new OCS leasing in California has to offer the state and the nation, we recommend and respectfully request that the California planning areas continue to be included in an OCS moratorium in the 1996-97 Interior Department budget. It is as important today as ever for the future of our great state. Thank you again for the opportunity to provide this testimony today.

THURSDAY, MARCH 7, 1996.

NEH

WITNESS

RODERICK FRENCH, NATIONAL HUMANITIES ALLIANCE

Mr. NETHERCUTT. The next witness will be the National Humanities Alliance, Roderick French. Welcome, Mr. French.

Mr. FRENCH. Thank you, Mr. Chairman. I am Rod French, professor of philosophy and vice president for academic affairs at a local university, George Washington University, in fact, and the immediate past president of the National Humanities Alliance. And we're pleased to be here once again. In fact, we are pleased that hearings are taking place this year.

Mr. NETHERCUTT. We wondered, didn't we?

Mr. FRENCH. We did. In fact, we wondered with some gravity because last year at this time we were somewhat traumatized in the humanities community with the prospect of an abrupt and total discontinuation of the Endowment, and all of us who have been associated with its activities over the last quarter century were distressed because we are quite aware of the key role the Endowment has played in our different realms of activity. In fact, it is, for much of what we do, an indispensable source of incentive funding.

And I feel a little more comfortable in saying that today because, as I'm sure you have just seen this report done by Nina Cobb and published by the President's Committee on the Arts and Humanities which documents the fact that, with the creation of the Endowment, an incredible period of joint Federal and private funding for the humanities was open, and at the same time I think makes good on an argument that discontinuing the Endowment now would have a contrary consequence from that which people might expect, that it would, in fact, reduce private support, private sector support for the humanities, because the incentive of these matching funds from Federal sources has done so much to increase our support.

In any event, at the moment we're dealing with an Endowment that has a severely reduced budget from last year, and one in which instructions from the Congress were to shelter two programs that we all value very much, preservation and State councils, but the consequence of that was a very crippling reduction in a number of other core programs.

So we're delighted that the President has submitted a budget which includes a figure of, I believe, $136 million, and we're hoping that Congress might enact an appropriation in that range which would make it possible for the Endowment to restore at least partially some of the programs that are now suffering.

I have a prepared testimony. I won't rehearse that. I've tried to structure it in a way that I think reflects the logic of the policy considerations driving the Congress and the standards of—the contribution of civic life, and the efficiency of the agency that's charged with the program.

In the original authorizing legislation, the Congress stated the mandate of the Endowment with an eloquence on which none of us could improve, and those of us in the community think, certainly after its recent downsizing, that Mr. Hackney and his colleagues do miracles with small amounts.

I've sung a kind of song in my testimony that tens of thousands of Americans could sing as well, and talk about my experience in the realm of scholarship and in higher education and with the D.C. Humanities Council. I happen to write the proposal that led to the formation of the D.C. Council, so I've seen one point that I would like to close with, and that is the interdependence of the various sectors of the Endowment; that is to say, particularly the way in which the public programs, the State councils have drawn academic humanists into the life of communities, but in the process of that academic humanists have had their research agendas and their teaching content influenced by that public experience, so that it's very valuable to see that interdependence of all of it.

It occurred to me on the way in, in closing, that there's a kind of metaphor from the folklore of American literature. We all talk about lean. Lean is a favorite term now, and you may remember that the lean prose of Ernest Hemingway was always appreciated by his readers, but my understanding is that his editor had a lot to do with that, a fellow named Max Perkins at Scribners, who told Hemingway once with his respect to his manuscripts that he should cut them until they bled. And my impression is that the NEH is bleeding at the moment, and I would hope that Congress would see fit to restore it to a condition where it could be truly viable.

Thank you very much.

Mr. NETHERCUTT. Well, thank you. Your testimony will be made a part of the record, and I appreciate your being here. Mr. Hackney was here yesterday——

Mr. FRENCH. Yes.

Mr. NETHERCUTT [continuing]. And testified at length, and we appreciate having your comments today.

Mr. FRENCH. Thank you.

Mr. NETHERCUTT. Thank you, sir.

[The statement of Mr. French follows:]

Mr. Chairman and Members of the Subcommittee:

I am Roderick French, professor of philosophy and former vice president for academic affairs at George Washington University, and immediate past president of the National Humanities Alliance.

The National Humanities Alliance is a coalition of more than eighty scholarly and professional associations, organizations of museums, libraries, historical societies, higher education, and state humanities councils, university-based and independent humanities research centers and others concerned with national humanities policies. A list of NHA member organizations is attached.

It is a convention for witnesses to say how pleased they are to have the opportunity to testify before the Committee. Today I can honestly say that the very fact that the NEH is still in business and these hearings are taking place is a source of delight for me and for the countless friends of the humanities throughout America. You know quite as well as I do that the humanities community was frankly traumatized last year when it appeared for a time that federal support of our enterprise might be abruptly and totally terminated.

We recognize that the Endowment is still under sentence in the minds of some. Nonetheless, I prefer to take these hearings to be happy evidence that such an extreme worry was an overreaction. If true, that news will be very reassuring to tens of thousands of our fellow citizens in schools and colleges and universities and museums and libraries and historical societies and state humanities councils throughout the land. They know full well that the remarkable state of vitality and creativity exhibited by the humanities in the 1990s is due in some considerable degree to the sustained support disseminated through the National Endowment for the Humanities over the last three decades. They also know that for all of their good stewardship manifested in scholarship and teaching and public programs--stewardship clearly appreciated by students and scholars and public audiences everywhere, for all of that they know that the incentive funding from NEH could never be even remotely approximated by alternative funding sources in the private sector.

This last assertion was most recently documented in the study by Nina Cobb published by the President's Committee on the Arts and Humanities under the title, "Looking Ahead: Private Sector Giving to the Arts and the Humanities." If you and other members of the Committee have had the opportunity to study this report you will have seen her very sobering empirical analysis of the circumstances of the humanities.

To the surprise of no one in this room, Ms. Cobb found that the creation of the National Endowment opened a new era in which private and public funding reinforced one another with wonderful results. But there are dark themes in this good story. In the last decade, overall corporate giving has declined. The size of donations by household has declined. And, finally, all the foundations reported that they will not be able to increase their support for the humanities in the years ahead. In short, not only has the humanities community already leveraged federal funds to exploit fully the resources available in the private sector, but the withdrawal of federal incentive funds would have the ironic effect of actually reducing private sector support for the humanities. The formation of the Endowment was a wonderful intervention by the Congress; its withdrawal now would be frankly catastrophic.

In these hearings last year, the Alliance's vice president and hearing witness, Werner Gundersheimer, testified that we recognized that the Congress is seeking to bring federal deficit spending to a halt and that we did not expect to be exempted from the process. He responded to a question from the Chairman by indicating that as long as the humanities were not singled out for a disproportionate cut we would accept our share of the pain with good grace.

As things played out, the National Endowment for the Humanities and its sister agencies were targeted for disproportionate reductions in FY 96. Moreover, the implementation of downsizing at the NEH was guided by Congressional instructions to moderate the impact on two programs that we all value highly, preservation and state humanities councils. Although certainly no one's intention, the consequence was a severe reduction in those programs that support education and research. Unwelcome as this development was, none of us would suggest solving the problem by redistributing the reduced funds available.

The result is that today we find ourselves facing two stark realities: severely limited alternative funding sources in the private sector and deep cuts in core programs at the NEH. We were delighted to learn via Sheldon Hackney's testimony yesterday before this subcommittee, that the President will propose a FY-1997 budget for NEH of $136 million. My colleagues and I in the NHA wish to express our support for the President's request. If that proposal were enacted by the Congress, it would enable the NEH to at least partially recover functionality in some of its most valued programs.

The structure of the argument I wish to make today in favor of that request responds precisely to the national policy concerns that have animated the present Congress. That is to say, we have recognized the need to justify every cent of funding for federal programs in terms of two standards: the civic value of the activity and the efficiency of the agency. The Congress itself eloquently articulated the rationale for public support of the humanities in the original authorizing legislation for the Endowment. That language is well known to you, and I won't reiterate the noble mandate in that legislation. As for the effectiveness of the NEH as the instrument of the intentions of the Congress, my colleagues and I believe that the health of the humanities today represents an overwhelming vindication of the agency.

It is worth emphasizing the vigor of the humanities today because some otherwise clever commentators have drawn quite the wrong conclusions from the lively, sometimes noisy disputes that are going on in every discipline. These commentators misunderstand the nature of the humanities, taking them to have been fixed definitively at some point in the past, not seeing them as the fluid endeavors that they are. A great American philosopher of an earlier generation, Max Black, got it right when he asked us to remember that there was never any Golden Age of the humanities which we should seek to restore. Instead, he told us, our "task is not so much to 'save' the humanities as to create them."

Thus it is that all of the ferment on our campuses and in our scholarly journals is not to be taken as an occasion for distress but as confirmation of the fact that the humanities are flourishing. There are more well-trained minds working harder for this perpetual re-creation of the humanities in this generation than ever in our history. Please allow me to illustrate this vitality with examples from three arenas with which I am somewhat familiar.

First in the field of American philosophy. There is in this decade a virtual renaissance of studies of the great philosopher of American democracy, John Dewey. I can say with little fear of contradiction that the two best book-length interpretations of Dewey ever written have been published in the last five years. Not only are those authors individually the beneficiaries of NEH support, but the flowering of Dewey scholarship of which they are a part was seeded by widely dispersed federal funding to libraries, documentation centers and scholarly societies.

There is added reason to dwell on this example. The motivations for this rediscovery of Dewey in the present time are of course complex. They include the apparent exhaustion of certain other lines of philosophical inquiry. But I am persuaded that a much more important reason is that a large number of philosophers are increasingly concerned to find the intellectual resources with which to help our country face the incredibly tough social and political challenges confronting our democracy. They want to help the great American experiment in democracy to continue to work in these very new circumstances of the close of the 20th century. This has led them to turn intuitively to the one American philosopher whose long career was dedicated to the examination of problems faced by all the basic institutions of a democracy.

In short, even in what many would characterize as the abstract and esoteric workings of philosophy, we can trace a clear return to civic practicality from the modest investment of public funds in the scholarly work of our universities.

In the second place, I wish to turn to higher education. As it happens, my own career as faculty member and administrator at George Washington University parallels exactly the years of the Endowment's existence. As one who has held various levels of responsibility for the well-being of the humanities in my institution, including eleven years as academic vice president, I know at first hand the irreplaceable role the NEH has played in expanding and deepening the role of the humanities in the life of my campus.

I will briefly and selectively recapitulate this story only because I am confident that it is representative of the story of the humanities on hundreds and hundreds of American campuses.

My institution was the recipient of a substantial institutional development grant right at the heart of the period of maximum turmoil on American campuses. As a clear result, the humanities departments not only survived the curricular revolutions of that era but emerged with a wider role than before. A few years later, I submitted a successful Challenge Grant proposal which of course had to meet the three-for-one matching requirement of that program. We used those funds to enhance our library's humanities holdings by nearly a million dollars in acquisitions and to create endowments for three distinguished professorships. I draw two lessons from that experience. One, thanks to the Endowment, the growing influence of the humanities in my university continues. Two, knowing the budgetary politics of my institution, this investment would never have been made absent the incentive of the Challenge Grant.

Finally, I wish to say a brief word based on my experience as the one who wrote the proposal that resulted in the creation of the D.C. Humanities Council. On the basis of watching that organization over the years, I can testify that the modest federal matching funds coming into the District of Columbia each year have triggered a reciprocal local investment that has produced a marvelous array of inventive public programs. The result has been an enrichment of community life unprecedented in the history of the federal city. I also can certify that this story would never have been written without the stimulus of federal funding through NEH.

The D.C. Council has also demonstrated in very concrete terms the interdependence of the academic and public spheres of the humanities. Through the programs of that Council literally scores of humanities scholars have been drawn into the life of the larger community as key players in imaginative public programs. More than that, for many of these academic humanists their research and teaching have been enriched in content and modified in focus by virtue of their experience in a public setting. This is intellectual reciprocity of the best sort. It also is a parable for the balance that must be maintained in the funding profile of the national Endowment itself.

In sum, Mr. Chairman, Congress has fashioned something both precious and efficient in the NEH. This combination of value and utility is the American tradition at its best. A relatively modest investment of federal funds has unleashed a multiplication of matching investments that has been felt as a force for good in thousands of American communities large and small. NEH is a monument to the wisdom of its founders and of those who have sustained it. But by virtue of the nature of the humanities this cannot be a monument that is installed in a museum and left to be venerated by future generations. The humanities are living fields of human endeavor. They require continuous nourishment and care. Every increment of reduced support will entail measurable diminution of some facet of teaching or research or public programs. With all due respect, the funding of the Endowment has now reached the boundary below which its very viability is at stake. Thank you.

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

LARRY KAVANAGH, AMERICAN IRON AND STEEL INSTITUTE

Mr. NETHERCUTT. The American Iron and Steel Institute, Larry Kavanagh. Welcome, Mr. Kavanagh. Thanks for being here.

Mr. KAVANAGH. Thank you. How are you doing?

Mr. NETHERCUTT. Great.

Mr. KAVANAGH. Okay, first, I'd like to just briefly thank the committee for the opportunity to speak today on behalf of the AISI and also for its prior support on some of our initiatives. What I'd like to talk about today are two things that are important, the advanced process control program out of the DOE Office of Industrial Technologies, in particular, and the Office of Industrial Technology and its role in industrial competitiveness kind of in general. And I'll be brief and I won't repeat the details of these things; it's in the written testimony.

Basically, the advanced process control program is an initiative that was derived out of Keyworth in the eighties and is designed to develop the technology that will keep the steel industry on the leading edge of automation. We began it less than three years ago among our member companies in DOE. It's been a great success so far. We're in the middle of the third year, and, to be brief, we've completed one project. We completed one project to develop a sensor to measure the properties of critical automotive steel online, and that was commercially licensed to a company in Gaithersburg last year and is aggressively being sold effective March 1.

We've got four other projects ongoing. Two of those will complete in Fiscal Year 1996, and the other two will run into Fiscal Year 1997 and Fiscal Year 1998. These projects are important, or continue to be important, and are in the critical stages now because we've gotten out of the laboratory. We've overcome the technical hurdles in developing the research and the technology is now out in the plant being proven. There are prototypes being tested and verified online. So we'd like to ask that the next year of funding for Fiscal Year 1997 in the amount of $2.7 million be given strong consideration to remain in the budget, so that we can carry out this important work geared at the steel industry's competitiveness.

And if I could divert now to the Office of Industrial Technology and talk a little bit about where steel is, the steel industry now is in the middle of an expansion in the United States, adding some 12 to 15 million tons of domestic capacity, creating a lot of new jobs, investing maybe $5, $5.5 billion over the next three years.

We, because of our leadership position in quality and in cost, we compete strongly not only in our own market, but we export quite a bit. 1995 was our highest year for exports since World War II in the steel industry.

However, the improvements in capacity and new technology we're making here are diminished significantly or pale in comparison to what's going on overseas, particularly in Asia, where, in fact, Chairman Regula was briefed this morning in this room on the tens of millions of steel tonnage coming onstream in China, Thailand, India, and the billions that are invested there. And this is being done in a different way than was done in the seventies and in the eighties, where antiquated plants from the West were bought and refurbished and rebuilt. This was all new current technology, state-of-the-art equipment that's going in there to compete on the world market as well as serve the needs of those countries locally.

So how does OIT fit into that? It has an initiative called "The Industries of the Future," and this is important because it's directed at having the most competitive industries in each manufacturing segment. The steel industry is part of this. We're in the middle now of, with the facilitation of DOE, developing our own research agency, the critical, technical advances we need to be the industry we think we should be 25 years from now. And this was important to do for aluminum and plastics and steel and glass, all of these industries, because what DOE's role in this is facilitating. It's not setting industrial policy. We're determining the research policy, but they're allowing it to happen and they're looking for the cross-cutting methods and the common themes among steel and aluminum and glass that, when combined and when leveraged among these industries, make us all stronger.

So what that does is it continues to let us fight it out in our home market, as steel and aluminum and plastic, for example, compete to be the material of choice in the car of the future, but it makes it stronger when we have to carry that battle into the global market, where it's certainly going to be fought in the next few years, if not longer.

Mr. NETHERCUTT. I agree with you; it's tough. Overseas competition is very difficult. We appreciate having your comments and wish we had more time to listen to your testimony. It is going to be made a part of the record; we're trying to keep on schedule here. Thank you for being here.

Mr. KAVANAGH. Certainly. If anyone cares to follow up through my office with questions, that would be no problem at all.

Mr. NETHERCUTT. Thank you.

Mr. KAVANAGH. I appreciate the time. Thank you very much.

Mr. NETHERCUTT. You're very welcome.

[The statement of Mr. Kavanagh follows:]

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Testimony on behalf of the American Iron and Steel Institute (AISI)
before the Subcommittee on Interior and Related Agencies
March 7, 1996

by Lawrence W. Kavanagh, Vice President - Manufacturing and Technology, AISI

Good afternoon Mr. Chairman and members of the committee. Thank you for the opportunity to present testimony on behalf of the member companies of the American Iron and Steel Institute.

My name is Larry Kavanagh and I am here today to thank this committee for its generous support in the past and to ask for the committee's continued support of the Department of Energy's Office of Industrial Technologies in general and AISI's Advanced Process Control program in particular ($2.7 million in FY 1997).

Office of Industrial Technologies

Our country's economy and industrial infrastructure are heavily dependent on the $45 billion per year American steel industry, as is our national defense. With 12-15 million tons of new domestic capacity coming on board between 1995 and 1998 (a 12-15% increase in production representing a capital investment of $5 billion), American steelmakers are investing here in the United States and creating thousands of new high-paying jobs. American steel paces the marketplace both at home, where we have developed new markets, and overseas, where steel exports in 1995 were the highest since W.W.II. As we approach the next century, the number of Americans who earn their living in steel is increasing.

Our capital investments pale in comparison to those ongoing overseas where tens of millions of tons will come onstream at costs in the tens of billions of dollars. This growth is particularly large in Asia where China, Vietnam, Thailand and Malaysia are rebuilding and creating steel industries. And they are not creating them by the method favored in the 70's and 80's--the purchase and relocation of antiquated plants from the West. These are state of the art facilities built to compete in the world market. One only need look at the example of South Korea, who in 1968 had no steel industry to speak of and now is led by POSCO, the world's second largest steelmaker (who is planning an 8 million ton expansion), to determine if such an undertaking can be accomplished. India and Taiwan, with established steel industries, have similarly aggressive expansions in progress.

Each of these countries subscribes to a different model for government's role in industrial competitiveness. But what is appropriate here? Should our governments' funds be used to "pick winners", e.g., should it determine that the car of the future be plastic or aluminum or steel? Certainly not. Can it serve to catalyze technological growth so that we have the best steel industry, the best aluminum industry and the best plastic industry? Yes, and we see this as the role of the Department of Energy's Office of Industrial Technologies. Its "Industries of the Future" program is focused on this objective and we support it. The Industries of the Future program facilitates each industry's own research planning, leverages both funds and knowledge and looks for cross-cutting technological advances that will benefit all of America's manufacturing segments. Having the most competitive steel, aluminum, and plastics industries is in our customers best interests, our workers best interests and our country's best interest. Through initiatives like this, American industry will be better armed for the global struggles ahead even as we battle it out for market share at home.

Advanced Process Control Program

Three years ago, the American Iron and Steel Institute launched an ambitious, five-year collaborative research program aimed at keeping North American steelmakers on the leading edge of world steelmaking technology. The joint project, called the Advanced Process Control Program, has already made substantial progress toward meeting it's goal of providing continuous, on-line measurements of critical product properties.

This program addresses a number of national goals. First it is an example of the type of alliance envisioned by the "Keyworth Initiative". That is, it brings to bear the world class skills of the government's national laboratories and university scientists to perform research to benefit an entire industry. Secondly, this project helps to satisfy national priorities. In the 1980's the government supported a number of studies on technology needs in the United States. These all identified the development of sensors and controls and the application of advanced computer technology to industrial manufacturing processes as critical to the future well-being and technological leadership of the United States.

By leveraging the resources and research capabilities of AISI member steel companies with world-class scientific skill from academia, national labs and from our suppliers and customers, Advanced Process Control is helping move the steel industry towards realizing its vision of the steel plant of the future -- one where a collection of tightly controlled, efficient processes yield superior product quality on a near inventory-free basis.

With nearly three years complete, the program has delivered its first commercial success, the "**Phase Measurement of Galvanneal**" sensor. This tool permits the on line determination of the microstructural subtleties of steel sheet coatings a few hundredths of a millimeter thick. This sensor makes it possible to improve control of a mill operating at several hundred feet per minute, which has wide-ranging benefits for our industry and our customers, e.g., extending the life of auto bodies. The technology is commercially licensed to Measurex-DMC of Gaithersburg, Maryland and is on sale now. Let me briefly review the status of the other four projects:

Another project - **Microstructure Engineering**, is aimed at improving hot rolling, perhaps the most complex process in steelmaking. Researchers are developing computer models that quantitatively link mechanical properties to the process parameters of the mill. The first stage of this five-year project was the development of a predictive model for plain carbon steels. The model was delivered in May 1995 to participating steelmakers for evaluation and use in their mills. It makes it possible to develop new steels on the computer and to optimize the hot rolling operation. Users can tailor it to the configuration of their hot rolling operations in a matter of minutes. Over the next two years, the Microstructure Engineering project will focus on complex micro-alloyed grades whose properties are specifically engineered for each consumer application. When complete, this project will allow steel companies to optimize their full range of hot rolling practices, specifically those regarding cooling and coiling. And equally important, it will reduce the time and expense of developing new steels by permitting much of the experimentation to be done off-line. The alternative is costly on-line testing.

Our other galvanneal project -- **Temperature Measurement of Galvanneal**, uses thermographic phosphor technology to assure accurate on-line temperature control of the galvannealing furnace. The project is being conducted by Oak Ridge National Laboratory, and National Steel Corporation . In the process being developed, spots of phosphor powder are placed at intervals on the still-molten surface of the steel strip as it leaves the galvannealing furnace. Using fiber-optics, pulses from a small ultraviolet laser at the exit end of the galvanneal furnace excite the phosphor. Then light detectors measure the time it takes the fluorescence to decay, giving operators real-time data on sheet temperature, from which product properties can be controlled. With successful March plant trials, we anticipate delivery of a commercial product within the year. Because of the diversity of temperature measurement problems throughout manufacturing, this technology will be actively marketed outside of the steel industry to improve manufacturability in other American industries.

Our next project is entitled **On-line Mechanical Property Measurement**; it also applies laser technology and will determine yield strength and other important properties on-line during high speed processing. The ability to track product uniformity on-line will have far-reaching benefits to steel and its customers. This project will install a prototype sensor in a steel plant early in FY 1997.

Another project is developing new technology for use in steelmaking vessels. Sandia National Lab along with our industry partners and Insitec Measurement Systems, a privately held technology developer, are creating sensors which operate in and around the molten bath to determine temperature, off-gas composition and refractory wear in real time. These sensors, one of which will complete in FY 1996, constitute our **Optical Sensors for Improved Steelmaking Furnace Operation** project, and form a set of on-line steelmaking instrumentation which will be unequaled around the world.

In summary, Advanced Process Control has wide applicability throughout the steel industry, and the diversity of industry funding reflects its value. From large, innovative steel companies like LTV Steel to smaller, innovative steel companies like the Timken Company, Advanced Process Control finds strong support. Being now firmly entrenched in the field and testing the accuracy, performance and survivability of these sensors, the last two years of work are critical. We respectfully ask that our FY 1997 budget of $2.7 million dollars be funded through the DOE.

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THURSDAY, MARCH 7, 1996.

DOE

WITNESS

L.R. LAWRENCE, JR., PRESIDENT, BOB LAWRENCE AND ASSOCIATES

Mr. NETHERCUTT. Bob Lawrence and Associates, L.R. Lawrence, Jr., President. We're delighted to have you, Mr. Lawrence.

Mr. LAWRENCE. Thank you, Mr. Chairman. I appreciate it.

It was nice to hear the testimony of Mr. Kavanagh because I think mine dovetails pretty well with it. The first time I testified before this subcommittee on the Department of Energy's Industrial Technologies Program was about 20 years ago, when I was director of end-use technologies at the Gas Research Institute, and since then there are a few new faces on this subcommittee, I thought it might help to give a little perspective about the kind of benefits that the DOE industrial program has put out over the last 20 years.

Frankly, myself and a lot of my colleagues believe that this program is the finest research and development program that the government has today. It has the highest return to the taxpayer of any that we know.

The key thing is that we find that the benefits of the programs here far exceed those that were envisioned when they started and we were talking about them 20 years ago. Entire new industries have been informed. New technologies have resulted in American firms winning billions of dollars in overseas contracts. Our environment has become much cleaner. New product lines have been put in place, and many small and medium-sized industries are healthy, employing people, and paying taxes, due to direct help from the Energy Analysis and Diagnostic Center's program, which is now called the Industrial Assessment Centers, or IAC program.

So, in short, this program over the last 20 years has increased the profitability, productivity, competitiveness, and environmental compatibility of many firms, resulting in stronger economic units, higher profitability, and, yes, more government revenues from the inevitable taxes on the higher profits, thereby bringing our national deficit below where it would otherwise be.

There are four key programs that my testimony talks about that are all in an area which is today called technology assessment. That's changed over the years. It's been called implementation and deployment or technology transfer. The key thing is, early on, the Department realized in this program that it wasn't enough to do good work; you had to get that result out into industry and get it used. So they put into place very early outreach programs that would do this.

In any event, the remainder of my written testimony discusses these four key programs, but the main thrust here is that in that movie "Field of Dreams," they say, if you build it, they will come. Well, unfortunately, you have to market it before they come; they have to understand its applicability and its benefits and everything.

Well, there's a lot of discussion here about all of the organizations that are involved, the dramatic savings. Dr. Kirsch is going to talk about the program that he pioneered in the early seventies. I think he's scheduled for 2:45, and this is a man who has made a tremendous contribution to this country. This EADC/IAC program has now audited over 6,000 firms, and the taxes back to the government from the savings that have happened out of this program now are three times what we're spending on the program per year. So that's a pretty nice return on investment that we've gotten out of that, and there are a lot of stories like that.

I'll leave you with one thing here, Mr. Chairman. This is a couple of years old, but to me it's very telling because this is a joint brochure from the Department of Energy and the National Association of Manufacturers, and I think all of us know how the National Association of Manufacturers feels about most government programs that affect industry. This is one that they support. They generated this together with DOE and sent it out to their 13,000 members. So here's a government program that really knows how to help the country and work with industry. That's my last copy; it's yours.

Mr. NETHERCUTT. Thank you, sir.

Mr. LAWRENCE. Yes, sir. Thank you.

Mr. NETHERCUTT. We appreciate having your testimony. Your written statement and this will be part of the record. We're glad to have you.

Mr. LAWRENCE. Thank you.

[The statement of Mr. Lawrence follows:]

BENEFITS OF THE DOE INDUSTRIAL TECHNOLOGIES PROGRAMS

Presented By:

Dr. L. R. Lawrence, Jr.
President
Bob Lawrence & Associates, Inc.

Mr. Chairman and Members of the Subcommittee. I am Dr. L. R. Lawrence, Jr., and I am President of Bob Lawrence & Associates, a marketing company headquartered in Alexandria, VA. It is my pleasure to come before you today to discuss a program I have been involved with and followed for over 20 years; The Department of Energy's Industrial Technologies program. To my mind, this is the research and development program with the highest return to the taxpayer of any in the Federal Government today. My request is that you strongly consider funding this program at the FY97 level requested by the Department of Energy simply because of the benefits this program provides and the substantial dividends our country receives from this program's results.

Mr. Chairman, I have been testifying before this Subcommittee since 1977, when I first came before you as the Director for End-Use Programs at the Gas Research Institute. At that time, I supported the Industrial Technologies Programs because of their potential for more efficient use of natural gas. The DOE technology programs were formed, as you and I well remember, to give the country some security against energy disruptions such as occurred in the 1970's. It was felt that a stronger energy posture was critical to the nation's security and standard of living. The technological approach was toward a greater dependence on US energy resources, through enhanced supply and more efficient utilization.

Today, twenty years later, we find that the benefits from these programs far exceed those which were envisioned when they started. Entire new industries have been formed (ceramics, biofuels, waste utilization, cogeneration). New technologies have resulted in American firms winning billions of dollars in overseas contracts. Our environment has become much cleaner through coal technology and energy efficiency programs. Major new product lines have been created (high efficiency furnaces, continuous smelting). And finally, many small and medium sized industries are healthy, employing people, and paying taxes due to direct help from the Energy Analysis and Diagnostic Centers program (now called Industrial Assessment Centers or IAC). Energy audits alone, supported by DOE, have resulted in the upgrading of more than 6000 small and medium sized industrial entities, through the implementation of technologies and practices developed under DOE funding, and we all know that small business creates 85% of the new jobs in our country.

In short, the DOE Industrial Technology programs have increased the profitability, productivity, competitiveness, and environmental compatibility of many firms resulting in stronger economic units, higher profitability, and, yes, more government revenues from the inevitable taxes on the higher profits, thereby bringing our national deficit below where it would otherwise be.

A major positive attribute of the DOE Industrial Technologies programs is that they are dynamic in nature. They change with time based on successes and newly identified needs. They also change based on new partnerships and program structures which address newly identified significant opportunities, and they continually analyze their own results, to ensure the most effective allocation of dollars. Programs which are not achieving milestones and predicted successes are dropped, saving the taxpayers millions.

The concept of cost-shared programs was pioneered by the DOE Industrial Technologies division in the late 1970's. Leveraging was very new to government programs at that time, and I can remember that this was very controversial. Clearly, it was the smartest thing that was ever done for government funding in the private sector, and virtually all private sector/government R&D programs are now copying this concept successfully.

At this point, I would like to make a strong comment about the process of getting R&D results into effective use. In the movie "Field of Dreams", the statement is made "if you build it, they will come". Only in the movies, and only in dreams. The fact is, "they will come" only if "they" know about it, and know how it will benefit them and be of value to them. Only when the facts are presented through a strong technology transfer program (implementation and deployment, technology access, technology assessment) will "they" find out about it, assess it, and then, "they will come". Again, the Industrial Technologies program has pioneered the process of "marketing" their successes through several novel schemes. Even the National Association of Manufacturers thinks so highly of their work that a joint NAM/DOE brochure was developed entitled "Energy Efficiency: The Competitive Edge". The brochure described much of the results of the DOE Industrial Technologies programs and their application. The brochure was signed by the President of NAM and the Secretary of the Department of Energy and sent out to every NAM member. This was even more significant, since we all know how NAM feels about virtually every government program that affects private industry.

Implementation is not accomplished just through brochures. DOE uses many techniques to assure that the maximum amount of the technology development gets utilized. Cost sharing is a strong incentive. Leveraging with associated organizations is another. Meetings, seminars, and other outreach programs are accomplished. Suffice it to say that the Industrial Technologies program understands the need for technology transfer and does it as well as any organization in the government.

For the remainder of my testimony, I would like to point out four particular programs within the Industrial Technologies office which deserve particular mention because of their unique present and projected benefits. These four are the IAC and Technology Transfer program; the National Industrial Competitiveness through Energy, Environment, and Economics ($NICE^3$) program; the Motor Challenge initiative; and the Climate Wise efforts. These four deserve special positive emphasis in the funding process.

The Industrial Assessment Center (IAC) program actually began at the time of the Energy Crisis (1974) in the Department of Commerce. It was then called the Energy Analysis and Diagnostics Centers program. When the Energy Research and Development Administration (ERDA) was formed, the precursor to DOE, it was transferred over. As with most DOE programs, this one has come under intense scrutiny from time to time, but it has survived, prospered, and grown strictly on its merits without a particular political "godfather". This Committee in particular deserves a great deal of credit for analyzing the results of this program and growing it accordingly. Dr. Kirsch is also testifying today, and he is the founder and pioneer who originally began this effort in the mid 1970's.

The EADC/IAC program uses skilled engineering professors, engineering graduate and undergraduate students, and appropriate consultants at each of the Centers. These teams go through intensive training, conducted by the lead contractors at University City Science Center and Rutgers University. Each Center resides on a University campus and has a radius around the campus within which it works. The centers, then, conduct a required number of audits of small and medium sized businesses within the assigned area. The audits are detailed, and kept confidential, making businesses more comfortable about participating in the program. Dr. Kirsch will provide more detailed and precise figures, but between 1981 and 1993, over $204,639,236 in savings PER YEAR were identified of which 49.2% were implemented. Many of these savings made the difference between profitability and loss at the subject plants.

Translating the savings into profit, and assuming a corporate tax on these profits of 30%, it can be readily seen that THIS PROGRAM RETURNS TO THE GOVERNMENT OVER THREE TIMES THE AMOUNT THE GOVERNMENT INVESTS ON AN ANNUAL BASIS.

The National Industrial Competitiveness through Energy, Environment, and Economics (NICE^3) program is an innovative, cost sharing program to promote energy efficiency, clean production, and economic competitiveness in industry. The program leverages state and industry funds by funding state/industry partnerships for projects which develop and demonstrate advances in energy efficiency and clean production technologies. Awardees receive a one-time grant of up to $400,000 for the proposed project. After the initial funding, the awardee is expected to commercialize the process or technology. A minimum of 50% cost share is required, and the projects may last for up to three years. Some of the success stories are:

a) PPG Industries in Ohio has developed and implemented a system to recover and reuse paint waste water.

b) FMC in Texas has commercialized a system to recover spent methanol in the production of hydrogen peroxide.

c) Damage Protection Products in California has produced a recyclable freight pallet from post consumer wastepaper.

d) AAP St. Mary's in Ohio is more efficiently remelting machined chips from cast aluminum automobile wheels and making new wheels.

e) AMPCO Metal manufacturing in Ohio introduced induction heating to replace continuously heated, fossil fired, holding furnaces.

f) Beta Control Systems in Oregon has developed a closed loop, hydrochloric acid recovery system for small to mid-sized steel companies which contains automatic controls.

g) Alpine Technology has constructed a system to remove contaminants from recyclable glass (cullet) using optical sensors and computer-controlled air jets.

Each of these advances has broad application and becomes widely known through this program.

Electric motor systems in industry account for nearly 70% of all electricity usage by industry. Therefore, each advancement in this area has widespread benefits. The use of motor systems is expected to double over the next 30 years. Therefore, the goal of the Motor Challenge program is to increase the market penetration of energy efficient, industrial, electric motor systems. To date, over 100 partner organizations have joined with DOE to capture the benefits of these efficient systems. This is an outstanding example of a marketing need, coupled with a development need, and DOE stepping up to the challenge. Market transformation strategies are coordinated with other Motor Challenge activities and have been integrated within the Motor Challenge program. Accordingly, Motor Challenge is comprised of the following elements:

> Partnership activities involving stakeholder planning, coordination, education, and training; Showcase demonstrations; Information Clearinghouse; Electric motor systems database; and, Market transformation strategies focussed on pumps, fans, blowers, and compressors.

Finally, the Climate Wise program addresses marketing activities particularly focussed on environmental results through energy efficiency improvements. Whether or not you believe that global warming is happening or is important, the results of these programs and projected future benefits speak for themselves.

Under the Climate Wise imprimatur, this joint DOE/EPA program defines, encourages, and recognizes industry voluntary actions which reduce greenhouse gases by adoption of behavior/ process changes, raw materials substitutions, and carbon sequestration, as well as technologies. Climate-Wise complements existing voluntary energy-efficiency programs such as Green Lights and Motor Challenge, but encourages companies to adopt innovative emission reduction technologies, as well. In short, this program uses Industrial Technology Program funds to provide technical assistance through a systems approach, with a five to one leverage ratio, and benefitting American industry in the result. Climate Wise may not be a particularly popular title, but the program, itself, is broadly effective.

In conclusion, Mr. Chairman, even though this is all good news, the battle on the energy front is far from won. While today, we have an economy which is the envy of the World, we are still spending $55 Billion every year to buy foreign oil. This is a very negative impact on our balance of payments and requires us to keep an enormous Defense budget , largely to protect our oil supplies. It is also money which could be much better spent here at home, on jobs, and within our own economy.

Clearly, the kind of work being done by the Industrial Technologies program is imperative to our continued high standard of living and competitiveness in this country, and the long successful track record of this program should be used to justify the modest requested appropriations increases we expect to see in the DOE FY97 Budget Request.

I thank you for the opportunity to testify on these matters.

L. R. Lawrence, Jr.

THURSDAY, MARCH 7, 1996.

DOE

WITNESSES

GERALD HUFFMAN, DIRECTOR, CONSORTIUM FOR FOSSIL FUEL LIQUEFACTION SCIENCE

RICHARD BAJURA, DIRECTOR, NATIONAL RESEARCH CENTER FOR COAL AND ENERGY

LARRY L. ANDERSON, PROFESSOR OF CHEMICAL AND FUELS ENGINEERING, THE UNIVERSITY OF UTAH

IRVING WENDER, RESEARCH PROFESSOR, UNIVERSITY OF PITTSBURGH

Mr. NETHERCUTT. The Consortium for Fossil Fuel Liquefaction Science, Gerald Huffman. Welcome, gentlemen.

Mr. HUFFMAN. Thank you. Mr. Chairman, the Consortium for Fossil Fuel Liquefaction Science is a research consortium with approximately 100 participants from five universities: the University of Kentucky, which is my home; the University of Utah, the University of Pittsburgh, West Virginia University, and Auburn University. And appearing with me today are representatives of several of those schools. To my left is Dr. Richard Bajura, West Virginia University; Professor Larry Anderson of the University of Utah, and Professor Irving Wender of the University of Pittsburgh.

Mr. NETHERCUTT. Welcome.

Mr. HUFFMAN. For the past three years, our consortium has been conducting research on the topic of converting waste materials, particularly waste plastics and waste tires into oil. And what we found, we think, is rather exciting. Basically, given the right conditions and the right catalyst, plastics can be converted about 90 to 100 percent into clean, high quality oil. Tires are converted into about 70 percent oil and about 30 percent of a carbon black byproduct. Furthermore, we find that you don't need high-pressure hydrogen or high hydrogen consumption to carry out these processes, so that makes it much more economical.

The Pittsburgh Energy Technology Center, encouraged by results like this, has now formulated a broader waste liquefaction program that includes in-house research by PETC, larger-scale tests at Hydrocarbon Technologies, and I believe you'll hear more about that later today, and some economic analysis by the Mitre Corporation.

The economic analysis I think is particularly interesting. It indicates that you can make oil from plastics and tires today and sell it at current oil prices and make a profit from it. Furthermore, this could be as high as a $2 to $3 billion-per-year industry, and it would significantly reduce our oil imports.

Consequently, the Pittsburgh Energy Technology Center has asked the consortium, in addition to the research activity, to conduct a feasibility study for a demonstration plant for this technology. And we're right in the middle of that now, and it looks very promising. We've been talking to a lot of State and local environmental officials, and they seem to be very enthusiastic about this idea. Right now they're paying big money to throw their plastics and their tires into landfills, and, frankly, they're too good to throw away. They're solid oil, and we need to recover them.

So we're hoping that Congress will continue this program. The consortium would like its future research to improve these processes, and we'd also like to start attacking other types of waste materials, such as automobile shredder waste, waste paper, wood waste, and some of the more hazardous waste materials, such as chlorinated solvents and PCBs. We're requesting that Congress fund us at the same level that they approved last year, $1.7 million, and I might emphasize that we do do substantial cost-sharing. We're going to put up $1.5 million from our five universities to match the DOE funding.

So I'd be happy to try to answer any questions you have.

Mr. NETHERCUTT. Well, thank you. You're on the right track in terms of using waste materials. I know some firms out our way in Washington State have been involved in recycling tires, chopping them up and using them for roads with plastic.

Mr. HUFFMAN. I visited one, Conrad.

Mr. NETHERCUTT. No, this is Oeser.

Mr. HUFFMAN. Oeser?

Mr. NETHERCUTT. O–E–S–E–R.

Mr. HUFFMAN. Okay.

Mr. NETHERCUTT. And then they were involved in potential wood waste generation plants in Alaska, to try to get some of that wood waste around the forest floor and use it for native villages to heat and a have co-generation facility.

You're on the right track. We'll do what we can do this year and take your request into consideration.

Mr. HUFFMAN. All right, thanks very much.

Mr. NETHERCUTT. Thank you.

[The statement of Mr. Huffman follows:]

The Consortium for Fossil Fuel Liquefaction Science

University of Kentucky
University of Pittsburgh
West Virginia University
Auburn University
University of Utah

Statement of Dr. Gerald P. Huffman, Director of the Consortium for Fossil Fuel Liquefaction Science

Presented before the House Appropriations Subcommittee on Interior and Related Agencies

March 7, 1996

Conversion of Waste Materials into High Quality Oil by Direct Liquefaction

The Consortium for Fossil Fuel Liquefaction Science(CFFLS) is a five university research consortium that includes approximately 100 participants from the University of Kentucky, Auburn University, West Virginia University, the University of Pittsburgh and the University of Utah. The CFFLS is requesting $1.7 million to support its research program in FY 97, the same level of support approved by Congress in FY 96. It should be noted that the CFFLS is significantly cost-shared, with the five Consortium universities providing nearly a dollar-for-dollar match to the DOE funding.

For the past three years, the CFFLS research program has focused on the topic of converting waste materials into oil using coal liquefaction technology. As summarized below, the results are quite promising:

- ✩Waste plastics can be almost completely converted to high quality oil.
- ✩Rubber tires are converted to 70% oil and 30% carbon black.
- ✩Waste oil and grease, heavy petroleum resid and coal can be coprocessed with plastics and rubber, producing additional oil.
- ✩The oil product is high in quality and clean. It can be used to produce new plastics and rubber or transportation fuel(gasoline, diesel, or jet fuel).
- ✩High pressure hydrogen is not required for liquefaction of plastics and rubber, which significantly reduces the cost of building plants.

Encouraged by these results, the U.S. DOE Pittsburgh Energy Technology Center(PETC) has significantly broadened the waste liquefaction program. The broadened program includes

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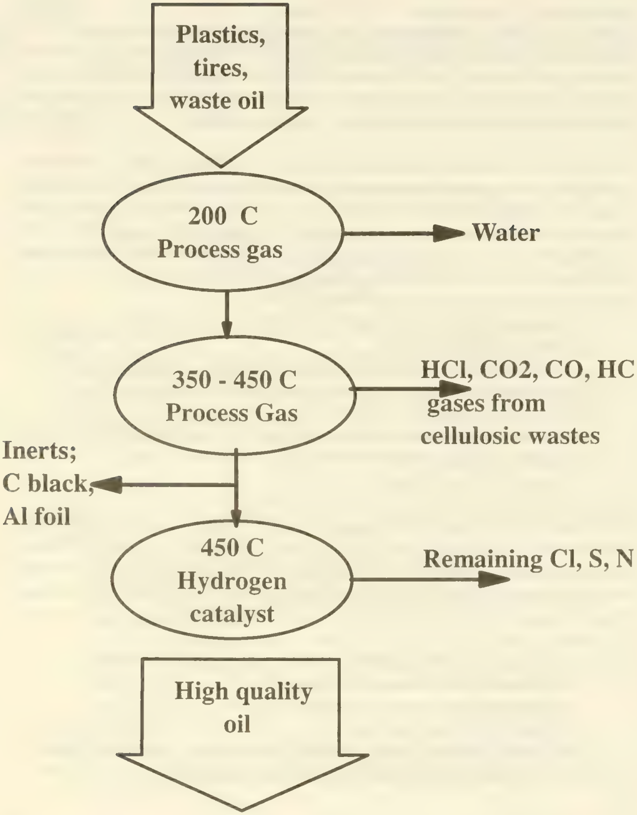
complementary in house research at PETC, continuous and pilot scale runs at Hydrocarbon Technology, Inc.(HTI), a preliminary economic analysis by Mitre Corp., and analytical work by CONSOL. Both the results from the continuous runs and the economic analysis indicate that this promising new technology could be commercialized. Consequently, CFFLS and PETC have initiated a feasibility study to produce a conceptual design and more thorough economic analysis for a first demonstration plant for liquefaction of waste plastics and tires.

The total oil resource from the waste plastics, tires, and waste oil and grease that is currently being thrown away in this country is approximately 150 million barrels per year. Coprocessing these wastes with petroleum resid and coal could raise the total resource to 300 million barrels per year. Capturing just a third of this resource would create a $2 billion per year industry and reduce our oil imports by 3%. Even more importantly, it would be a major step towards the goal of eliminating landfills and tire dumps. To achieve these goals, however, more research is needed. The future CFFLS research program will focus on the following topics:

☐ Development of improved catalysts and optimization of reaction parameters for the liquefaction of plastics and tires.
☐ Hydrotreatment of chlorine-containing wastes(PVC, PCBs, chlorinated solvents).
☐ Conversion of cellulosic wastes(such as paper, wood, yard, and agricultural wastes) into valuable hydrocarbon products.
☐ Conversion of automobile shredder residue(ASR or automobile fluff) into valuable hydrocarbon products and metal by-products..
☐ Liquefaction of mixed wastes.

PETC and CFFLS are currently formulating a strategy for a broader program focusing on waste materials as an energy resource. In this strategy, research by the CFFLS and others would attack the general problem of turning a variety of hydrocarbon-based waste materials into useful energy resources. Direct liquefaction may be the best strategy for some of these wastes, while indirect liquefaction, gasification or combined-cycle combustion may be best for others.

In summary, it appears likely that continuation of this research program could lead to:
➜ The elimination of plastics and tires from landfills.
➜ A significant new domestic source of oil.
➜ A new $2-3 billion per year industry.
➜ A broader program to develop other hydrocarbon wastes as a major energy resource.
We believe this research is highly worthy of continued Congressional support.



Waste liquefaction process. Using conservative tipping fees and oil prices, the income per ton of waste processed would be $80-100.

University of Pittsburgh

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Statement of Gerald D. Holder, Associate Dean,
Irving Wender and John W. Tierney

Presented before the House Appropriations Subcommittee on Interior and Related Agencies

March 7, 1996

Conversion of Waste Materials into High Quality Oils.

The Consortium for Fossil Fuel Liquefaction Science (CFFLS) is made up of five universities: The University of Kentucky, Auburn University, the University of Pittsburgh, West Virginia University and the University of Utah. There are approximately 100 participants from the five universities. The Consortium is requesting $1.7 million to support its research program in FY97, the same level of support approved by the Congressional Conference Committee in FY96. The CFFLS is well cost-shared, with the five Consortium universities providing nearly a dollar-for-dollar match to DOE funding.

The CFFLS research program has focused on the topic of converting waste material into oil using coal liquefaction technology. Instead of using high cost hydrogen, new technologies are being developed which proceed at low pressures using much cheaper inert gas such as nitrogen. The results have been surprisingly promising. We are on the way to accomplishing the following:

- converting waste plastics completely into high quality oil suitable for transportation fuels and chemicals or for reconstitution into new plastics.
- converting the huge number of rubber tires to oil (70%) and carbon black (30%).
- coprocessing waste oils, greases, heavy petroleum residuals and coal with plastics and rubber tires to produce high quality oils.
- importantly, the Consortium has found that costly high pressure hydrogen is not needed for the conversion of many of these waste materials. Plastics, for instance, can be converted to gasoline, diesel oil or jet fuel using an inert gas at low temperatures. The costs for building and operating waste conversion plants can be significantly lowered.

These results have opened the way for the U.S. DOE Energy Technology Centers to significantly broaden the waste conversion program. A broadened program is envisaged including in-house research at PETC, possibly some continuous runs at Hydrocarbon Technology, Inc. (HTI), preliminary economic analyses by the Mitre Corp. and analytical work at Consol, Inc. So far, promising finds indicate that these new technologies could be commercialized. PETC and the CFFLS have initiated a feasibility study to provide a conceptual design and more thorough economic analysis for a demonstration plant for conversion of waste plastics and tires to high quality oils.

About 150 million barrels of oil could be made from the various wastes now being thrown away or landfilled. By coprocessing these wastes with petroleum residual or coal, some 300 million barrels of oil could be produced per year. If we captured only a third of this resource, a $2 billion per year industry would be created, and our oil imports could be reduced by 3%. Landfills and tire dumps could be eliminated to a great extent.

More research is needed to achieve these goals, goals whose achievement would add many new jobs for our people while cleaning the environment.

The CFFLS hopes to address a number of topics in FY97. These include:

- develop improved catalysts for conversion of mixed wastes.
- convert the large amounts of chlorine-containing wastes (PVC, PCB's, chlorinated solvents, etc.) to oils which contain very little or no chlorine. We are making significant progress in this area.
- convert lignocellulosic wastes such as paper, wood, yard wastes and agricultural wastes into valuable fuels and chemicals.
- convert automobile shredder wastes (automobile fluff) into useful organic chemical and metals.

The strategy being formulated by PETC and the CFFLS includes a broader program focusing on converting waste materials by a number of technological approaches into valuable energy and chemical resources. Direct liquefaction, indirect liquefaction via synthesis gas, catalysis by zeolites or environmentally clean strong solid acids, or use in combined-cycle combustion (perhaps for sewage sludges) will be chosen, as needed, for conversion of waste materials.

Continuation of this program will likely

- lead to a new $2-3 billion per year industry with a large number of accompanying jobs.
- enhance our environment by reducing the number of landfills by obtaining the full value of clean oils from hydrogen-rich plastics and tires.

A new industry stands ready to become part of America's future--new jobs, new energy security, new growth and new ability to cope with the future.

We believe this program of research is highly worthy of continuous Congressional support.

National Research Center for Coal and Energy
West Virginia University

Statement of Richard A. Bajura, George Fumich, and Trina Karolchik

WVU National Research Center for Coal and Energy

before the House Appropriations Subcommittee on Interior and Related Agencies

March 7, 1996

Mr. Chairman and Committee Members:

I am offering this testimony in support of a request for continued funding for research to convert coal and waste materials into oil by direct liquefaction--a truly novel solution for providing this nation's transportation fuels through the recycling of waste materials destined for landfills. The research is being conducted by the Consortium for Fossil Fuel Liquefaction Science and is supported by the U.S. Department of Energy. The Consortium includes West Virginia University, the Universities of Kentucky, Utah, and Pittsburgh, and Auburn University and has been called a model of inter-university and government cooperative research. The Consortium received $1.7 million in FY 1996 and provided nearly dollar-for-dollar cost share as a demonstration of its commitment to this research initiative. Support exists for continuing the program in FY 1997; we are awaiting the final outcome of the current federal budget negotiations to move ahead.

In 1995, the National Research Council Subcommittee on Strategic Assessment of the DOE Coal Program found that, "There will be a powerful economic driving force for major expanded use of coal over the next several decades with concomitant pressures to reduce environmental impacts through improved technology." This dual economic/environmental pressure underscores the particular relevance of the waste-coal co-liquefaction technology the Consortium is researching. Co-liquefaction can reduce this nation's continued reliance on foreign oil, while solving a waste disposal problem.

In West Virginia, as in other states, state legislators are passing laws limiting the acceptance of tires into landfills in response to their constituents demands for a cleaner environment. Voters support recycling initiatives, and they expect tires to be recyclable. Unfortunately, the technology is not commercially available to meet this pent up demand. The CFFLS research, may provide just the technology that citizens want. At West Virginia University, CFFLS scientists are focusing their research on co-liquefying tires with coal. The WVU scientists are working with their colleagues throughout the CFFLS on this problem and on the problem of plastics recycling as well.

The CFFLS estimates that the technology being developed could improve the trade deficit by $2 billion and lead to hundreds of waste disposal liquefaction plants that would create thousands of new jobs nationally providing a new, domestic source of oil. An economic analysis by the Mitre Corporation showed that oil produced by co-liquefaction of coal with waste plastics and rubber could be sold at prices that compete with imported foreign oil.

The CFFLS is poised to continue this valuable work in the fourth year of a five year agreement with the U.S. DOE. With continued funding in 1997 to complete the final year of the current five-year agreement, the Consortium will develop the information needed ultimately to build waste liquefaction plants. Support for the continuing this valuable research effort is a small, positive step this country can take to develop a technology that promises to be one of this nation's energy options and a unique opportunity to turn waste materials into a valuable commodity.

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March 5, 1996

The Honorable Ralph Regula, Chairman
Interior and Related Agencies Appropriations Subcommittee
B-308 Rayburn House Office Building
Washington, DC 20515

SUBJECT: The Consortium for Fossil Fuel Liquefaction Science

Dear Sir:

In the course of your deliberations for FY97 appropriations, please be aware of the importance of current federal funding for research now under way at Auburn University through the Consortium for Fossil Fuel Liquefaction Science.

This program is insuring the continuation of research on the liquefaction of solid waste materials and coal into usable products such as transportation fuels and chemical feed stocks. The research is being performed by an experienced multidisciplinary team of faculty who has more than 50 years of collective experience with this technology. Reduced federal and private funding threatens the existence of this team and similar ones in the United States. Although significant funds are being provided by the State of Alabama for our work, they are insufficient to maintain a high quality program over the long term.

The most important products of academic research are the students educated in energy and environmental research for careers in industry and government. Dramatic decreases in federal funding for such research are threatening the production of the next generation of researchers in basic areas such as coal liquefaction and co-liquefaction of coal with waste products. Three students with advanced degrees graduated from Auburn last year and several more will graduate this year; current funding through the consortium assures additional graduates next year.

Research initiatives at Auburn are coordinated with other members of the Consortium (University of Kentucky, University of Utah, University of Pittsburgh, and West Virginia University) and focus on the co-liquefaction of coal and waste materials such as plastics, paper, tires and used oil as well as direct liquefaction of coal. Significant progress has been made on the liquefaction of wastes and coal. This process offers a solution to two significant national problems of utilizing waste materials rather than land-filling them and developing internal energy resources rather than importing them. This process also has the potential to develop into many profitable local industries since the processing is best done at the site of waste collection. The loss of funding would significantly impact the development of an important option in the solution of a national problem.

Sincerely,

Christine W. Curtis

Christine W. Curtis
Associate Vice President for Research
and Alumni Professor of Chemical Engineering

CWC/lp

THE UNIVERSITY OF UTAH

5 March 1996

The Honorable Ralph Regula
Chairman
Interior and Related Agencies
Appropriations Subcommittee
2333 Rayburn House Office Building
Washington, D.C. 20515-1702

RE: Testimony Regarding the Consortium for Fossil Fuel Liquefaction Science

Dear Congressman Regula:

The 1993 NRC report "Advanced Exploratory Research Directions for Extraction and Processing of Oil and Gas" concludes that the use of our plentiful coal reserves as a source for oil and gas is inevitable as well as technically and economically feasible, and recommends that high priority be given to basic and exploratory research activities in this area within the overall DOE program. Coming from the oil and gas research and development community, which has traditionally been in strong competition with the coal R&D field, this recommendation underscores the desperate situation our nation could face, in the not too distant future, if coal were to be left out of the overall transportation fuel equation.

Working together as a team with the Pittsburgh Energy Technology Center over the past nine years, the more than fifty faculty members and a total of over 200 students at the five participating universities (the Consortium for Fossil Fuel Liquefaction Science, CFFLS) have succeeded in demonstrating the feasibility of producing high value liquids from coals of widely different quality, e.g., with regard to oxygen, sulfur and ash content. Moreover, some of these results were obtained at relatively low process temperatures and pressures while reducing the consumption of hydrogen and the need for costly, exotic catalysts. As a result, several coal liquefaction concepts and methods explored by CFFLS members are now ready for further industrial development and eventual commercialization. Unfortunately, the continued low price of petroleum crude on the world market has, thus far, prevented coal-derived liquids from becoming economically competitive other than in the regions of the globe affected by OPEC enforced oil embargoes or by exceptionally high oil import tariffs.

New market forces are being created and shared by the growing public demand for recycling of used petrochemical products, such as waste plastics and rubber tires, as an alternative to the increasingly costly and controversial use of landfills or incinerators. Although a small proportion of "prime quality" waste plastics can be recycled directly by the plastics industry, most of the discarded plastic articles and rubber tires contain too many undesirable components. Consequently, these materials require the development of special

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liquefaction methods capable of overcoming many of the same processing problems initially faced by researchers in the field of coal liquefaction. By applying the lessons learned from coal liquefaction to the processing of waste polymers, an important savings in time, effort and cost can be achieved.

In addition to this technology transfer opportunity, the chemical and physical nature of coal and waste polymers do complement each other in several ways. This has led the DOE/CFFLS team to pursue the concept of co-liquefaction of coals and waste polymers where the coal component provides a stable and plentiful bulk feedstock and the waste polymer fraction contributes a cheap source of hydrogen, process solvents and, possibly, catalyst. Experiments by several CFFLS member universities have confirmed the potentially synergistic action of both components during the co-liquefaction procedure. Consequently, co-liquefaction studies of coal and waste polymers are at the center of the joint research and development program of the Pittsburgh Energy Tecnnology Center and CFFLS.

A recent economic analysis by the MITRE Corporation has estimated that this co-processing technology may further reduce the cost of producing liquid fuels to a price comparable to today's oil prices. Japan, Germany, England and Italy are now beginning to seriously evaluate this new technology. Fortunately, the foreign research base for this technology has not advanced as far as that being developed by the CFFLS, but major efforts are being considered in Japan to vigorously pursue this technology and their research efforts in this field have accelerated rapidly in the last year.

Adoption of a coal/waste polymer co-liquefaction path would offer the United States an affordable, environmentally sound solution to the waste polymer recycling problem while simultaneously building up a strategically important coal liquefaction capacity. Simultaneously, the nation's long term interests in presenting a future generation of Americans with viable options for the domestic production of transportation fuels and petrochemical substitutes, in the face of dwindling world supplies of oil and gas, will be well and wisely served.

Yours respectfully,

Ronald J. Pugmire
Associate Vice President for Research

RJP/bm

THURSDAY, MARCH 7, 1996.

BOM

WITNESS

BOB LAWRENCE, ARCTIC SLOPE REGIONAL CORP.

Mr. NETHERCUTT. Arctic Slope Regional Corporation, Teresa Imm.

Mr. LAWRENCE. Teresa has asked me to apologize to you, Mr. Chairman. I'm Bob Lawrence. She meant to be here today. She is stuck up in Anchorage. She's now the resource development manager for all of the resources on the North Slope that are under control of the Arctic Slope Regional Corporation, and, unfortunately, any crisis that occurs there becomes hers.

Mr. NETHERCUTT. Sure.

Mr. LAWRENCE. Very briefly, this is a program that's been ongoing for about five years. It's a pioneering effort in that it was a cost-shared program between the Bureau of Mines and the Arctic Slope Regional Corporation, where they were looking at environmentally-effective and efficient technologies for developing mines in that region. This is a small effort. It's put a lot of people to work up in that area, which has been good for everybody. The hope, of course, is to use the product locally, as well as to have some small export potential.

The problem that we understand, but, nonetheless, it exists at this point, is with the Bureau of Mines being eliminated. This program has been moved to the fossil energy programs at the Department of Energy, and, in fact, is out in the State of Washington, I believe, Spokane Research Center. And the people there seem to believe in the program. The problem, of course, is making sure that the money is available in the fossil energy program to keep it going.

The written testimony lists a lot of the benefits that have come out of it and are projected. It's a well-thought-of, good program between government and the local folks there. We are hoping to be able to finish it along the exact lines that we have been testifying on for the last five years.

Mr. NETHERCUTT. I'm one who supported Bureau of Mines' continuation, and since I represent Spokane, Washington and the Spokane Research Center, I'm sure they'll get adequate consideration this year.

Mr. LAWRENCE. Thank you very much, Mr. Chairman.

Mr. NETHERCUTT. Thank you.

Mr. LAWRENCE. We appreciate that.

Mr. NETHERCUTT. Thank you for being here.

[The statement of Ms. Imm follows:]

WESTERN ARCTIC COAL RESEARCH

Prepared by:
TERESA A. IMM
Resource Development Manager
ARCTIC SLOPE REGIONAL CORPORATION
Anchorage, Alaska

Mr. Chairman and Members of the Subcommittee, my name is Teresa Imm and I am Resource Development Manager for the Arctic Slope Regional Corporation (ASRC) and Program Manager for the Western Arctic Coal project. I am testifying today to bring you an update on our progress with the Western Arctic Coal Project. This project began as a cost-shared effort with the Bureau of Mines, and is now under the auspices of the Department of Energy.

ASRC is one of thirteen Alaska Native Corporations formed by Congress in 1971 under the Alaska Native Claims Settlement Act. ASRC manages the land and business interests of its more than 6,500 Inupiat shareholders. Its land holdings include approximately five million acres across the North Slope of Alaska. The resource potential of ASRC's lands are essentially untapped and our Western Arctic Coal project is our first attempt at coal development. We have recently completed year two of our Arctic Coal Research with the Bureau of Mines. The results of this cooperative agreement have been very productive. Our first increment of funding of $600K from FY 93 monies are essentially depleted. We are requesting an additional $1M for a total of $1.6M for this program, consistent with our testimony of the past five years.

As you as aware, the Inupiat people have populated northern Alaska for thousands of years, and they have a firm desire to see any project carried out on their lands to be accomplished in the safest and most environmentally sound manner possible. The Western Arctic Coal project is very important to the people of the Arctic region. It provides a unique opportunity for employment, economic growth, and self-sufficiency to the region where little other opportunity exists. Nothing is more important to those who live on the North Slope than the preservation of the environment. Because of this keen respect for the environment we have been pleased to have the Bureau of Mines involved in this project. This has allowed the best mining expertise to be applied to our project on a cooperative basis. However, with the elimination of the Bureau of Mines from the Department of Interior our project has moved with the remnants of the agency to the Department of Energy, Fossil Fuels Division.

It is estimated that Alaska coal resources may total up to 5.5 trillion tons. More that half of Alaska's coal reserves are found in the Northern Alaska Coal Province with reserve estimates of greater than three trillion tons of coal. The Northern Alaska Coal Province, located entirely on the North Slope of Alaska, represents the largest coal province in the United States and ranks with the top two or three in the world. This coal province lies entirely within the continuous permafrost zone of Arctic Alaska. The Western Arctic Coal Fields are located at the western end permafrost zone of Arctic Alaska. The Western Arctic Coal Fields are located at the western end of this vast coal province and contains reserve estimates of greater than two billion tons of coal. The production from this significant resource has been limited to only demonstrations and small operations producing coal for local communities.

Environmentally, our coal resource is so free of sulfur and other impurities that combustion studies in Korea, japan, and the United States have shown lower emissions from burning this coal that the present emissions from equipment fueled with refined oil. The emissions from burning this coal are less than those from burning a comparable amount of fuel oil on a BTU basis. Coal on the North Slope is one of the cleanest coals in the world, having an average of 0.3% sulfur, 7% ash, and 3% moisture, and averaging greater than 13,000 BTU/lb. This coal is environmentally friendly with less than one-quarter of EPA's allowable content of sulfur dioxides when burned. These characteristics make coals of similar qualities one of the most sought after sources of energy in the world.

Developing Arctic coal mines represents an immense challenge because of adverse weather conditions, isolation, accessibility problems, short shipping seasons, and a permafrost environment. Before significant development of Alaska's Western Arctic Coal can be considered, it will be necessary to develop a technological database of mine designs and mining methodologies which will meet strict environmentally sound performance standards established for Arctic terrain.

The second year of our cooperative research project with the Bureau of Mines is complete. The project has been consistent with the Congressional language which accompanied the FY93 appropriation. The purpose of the cooperative project was to assess existing technology and develop new technology leading to design criteria for environmentally sound mining of Arctic coal in Northern Alaska. Technological compliance with current State and Federal regulations for mine development, active operation, and closure is necessary for mine development. This research should contribute technology for creating a post-mined setting that is both aesthetically pleasing and acceptable for secondary use.

The technical approach taken in our cooperative research project was to establish the scientific parameters for the treatment of site materials, hydrologic protection, and restoration of the tundra/permafrost environment following the extraction of Western Arctic Coal. The research project has provided information and limited guidelines for reclamation planning and implementation to return Arctic mined lands to a stable ecosystem in an environmentally acceptable manner.

The preliminary Research Objectives of the first level of funding were to specifically address the following:

a) Determine stability of pits, spoil piles, and underground openings in permafrost zones;

b) Determine appropriate reclamation technology for pits, spoils, and other disturbed areas;

c) Provide suitable models for evaluating hydrologic flow in surface-thawed permafrost regions and to evaluate surface water quality from spoils, soils, and other mining activities and recommend suitable control and treatment strategies as necessary;

d) Evaluate the impact of social/economic factors on mining operations;

e) Determine safe and efficient blasting plans for permafrost;

f) Further evaluate the coal resources in the region.

Significant research was accomplished under our first appropriation and several reports were generated addressing slope stability, revegetation parameters, and blasting efficiencies in permafrost. However, due to the lack of additional federal funding to complete the project as originally proposed, numerous aspects of the project are yet unfinished. Lack of continued funding combined with the elimination of the Bureau of Mines, specifically the Twin Cities Research Center, have left the project in a suspended status. The closure of the Twin Cities Research Center has forced our project to be moved to the Spokane Research Center. Presently, we are still uncertain as to the future of the project due to lack of federal budget attached with the transfer. ASRC is requesting the project be made whole through a final appropriation of $1M to complete tasks as outlined in this testimony.

Our cooperative agreement with the Bureau of Mines has been mutually beneficial to both parties. ASRC has received expertise and research capabilities from the Bureau that we could not maintain in-house to answer significant questions pertaining to reclamation and mine design in an Arctic environment. The Bureau of Mines has received the unique opportunity to address critical questions relating to Arctic mining, reclamation, and the Alaska regulatory environment. ASRC has been able to provide the Bureau a research site through the establishment of the Kuchiak Research Mine constructed in 1994. Use of the Kuchiak Research Mine was part of the original scope of work of our cooperative agreement but has been under utilized due to the transient status of the cooperative Arctic Coal Research program since its inception. We very much desire not to see our expended efforts to establish the Kuchiak Research Mine wasted and unfulfilled.

The Western Arctic Coal research mine has broken new ground on our understanding of mining in permafrost regions and has provided us with valuable information. Of particular interest is the effects permafrost has on rock and coal strengths for underground mine design considerations. There are no analogues of mining coal in zones of continuous permafrost; therefore all permafrost research needs to be conceptualized and then initiated to collect baseline data to be utilized in future mining endeavors.

Research goals for our FY97 request of $1M are for:

a) Continued Arctic reclamation investigation including stabilization of stockpiles of frozen, unconsolidated material. Disturbed permafrost materials are highly erosive. Development of stabilization techniques for this material is necessary for mining and reclamation.

b) Permafrost effects on underground mine design including: rock and coal characterizations and mechanics for frozen materials, investigation of thermal gradients in the roof, testing of multiple configurations for roof support, placing strain instrumentation in the roof to characterize deformation, and the testing of different types of water sealant on water sensitive rock types.

c) Research mine ventilation and evaluate how to ventilate a coal mine situated in frozen ground. The thermal differential between the external temperature and internal temperature will vary throughout all seasons. This may lead to considerable humidity problems in the underground environment.

d) Identification of spontaneous combustion characteristics of the coal.

e) Surface hydrologic parameters for mined lands in permafrost. Underground coal mining and the associated support facilities will require large volumes of water. Basin-wide hydrological studies are necessary to determine both quantities of water and location for impoundment of surface run-off with impacting the integrity of the permafrost environment. Development of insulated liners for impoundments and sedimentation ponds will be required.

f) Identification of subsurface saline water bodies in the region. Although the region is underlain by continuous permafrost to a depth of approximately 900 feet, saline water bodies have been encountered in two boreholes during drilling. It is important to understand the nature of these water bodies for long term mine planning and safety.

These research goals are consistent with the original scope of work under our FY 93 cooperative agreement and provide the next logical step towards developing standards for Arctic underground mining. Development of our underground research mine provided a singular opportunity to study and collect data in an underground environment.

In summary, the Western Arctic Coal Fields are exceptional in quality and volume when compared to other reserves. Development of these reserves can provide a significantly increased standard of living for the native population of the North Slope. We wish to employ the best available mining knowledge and technology and to share of findings with others so that all future Arctic mining can be done in the most efficient and environmentally sound manner possible. We appreciated the opportunity to provide this testimony, this year, and we thank you for supporting this uniquely challenging and significant research project.

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

HOWARD GELLER, EXECUTIVE DIRECTOR, AMERICAN COUNCIL FOR AN ENERGY-EFFICIENT ECONOMY

Mr. NETHERCUTT. American Council for an Energy-Efficient Economy, Howard Geller, executive director.

Mr. GELLER. Thank you, Mr. Chairman. Good afternoon.

Mr. NETHERCUTT. Good afternoon, Mr. Geller. Thanks for being with us.

Mr. GELLER. Our organization, which is often known as ACEEE, is a nonprofit organization dedicated to advancing greater energy efficiency. I'm going to discuss some of the broad rationale and benefits for DOE's energy-efficiency programs and spend a little bit of time specifically on appliance efficiency standards. I know it's been a controversial issue for the subcommittee and the Congress.

We endorse increased funding for DOE's energy-efficiency programs along the lines that we expect DOE will be coming forward within the Fiscal Year 1997 budget request. We do realize that funding for non-defense discretionary programs is very tight and that the Interior bill overall is not likely to be increased in Fiscal Year 1997. However, we ask that efficiency programs be given a higher priority by the subcommittee and the Congress overall and that these programs not be subjected to a disproportionately large cut, as was the case in the 1996 bill.

There are basically three major reasons we think that they should be given higher priority. The first is that they have been a tremendous success. DOE has a real proven record of helping to turn what are just engineering concepts into viable energy-efficiency technologies. Two of the most notable examples have been the electronic lighting ballasts and low-E window coatings, which are both in widespread use.

We recently looked at the impact that these particular technologies are having in the marketplace and discovered that, as of 1995, U.S. manufacturers had already realized over $3 billion in additional revenues from selling these higher value-added energy-efficiency technologies, and, likewise, consumers were realizing billions of dollars of net savings from their lower energy bills.

There are many other examples of success stories, quite a few in the industrial area. I know a number of companies in your home State, companies like Weyerhauser, Boise Cascade, Boeing; they're all partnering with the Department of Energy, co-funding, and getting the technical assistance for developing these advanced energy-efficiency technologies.

These programs make sound economic sense for consumers as well as the Federal Government. The Federal Government gets additional income tax payments from the companies that produce, get revenues and profits from selling these technologies. There's also payback to the Federal Government, as it reduces its own energy bills, which in buildings alone is on the order of about $4 billion per year, and the Federal Energy Management Program is starting to have a real impact. Ft. Lewis, Washington is one of their big success stories.

And, third, I want to point out the environmental benefits that are coming from energy efficiency. It's obvious you save energy; you burn less fuel, reduce pollutants of all types.

I hesitate, but, anyway, I will point out a story that you might have seen in The Wall Street Journal a few days ago on the environmental issue in the current election year, a couple of quotes.

"The environment is rapidly developing into a wedge issue that threatens Republican candidates," and according to Linda DiVall, "Most disturbing is that 55 percent of all Republicans do not trust their party when it comes to protecting the environment."

And I would suggest that if Republicans want to improve their environmental record and image, there is no better place to start than by restoring some of the cuts made in DOE's energy-efficiency programs. We recognize it will be very difficult to restore all of the money cut last year, but if the subcommittee and Congress are willing to take a step in this direction, we would like to work with you in helping to identify the most beneficial and deserving programs.

If I have two more minutes, I'd like to turn to appliance standards. Appliance efficiency standards have been one of the most effective and successful actions taken by the Federal Government to improve our Nation's energy efficiency. I want to pass on a report that we completed last November to the subcommittee, where we review the overall benefits that have resulted from standards already adopted. It's roughly $130 billion of net benefits for consumers over the lifetime of products affected by existing standards with an overall benefit/cost ratio of three to one. That works out to about $1,300 per household on average.

And, further, standards that DOE is working on, and that are required by the NAECA legislation would add additional billions or tens of billions of dollars to those savings. Consumers are losing billions of dollars in savings each year that DOE fails to issue new standards, as required by the law.

Now that the Congress has become less supportive of regulations in general, some manufacturers such as General Electric and Magneteck are attempting to block any new Federal standards from being adopted. But not all manufacturers take this point of view. Companies such as Whirlpool I think will be testifying later and the Carrier Corporation, are conducting substantial R&D and are willing to further increase the efficiency of their products. These companies support continued prompt implementation of the appliance standards law. Preventing DOE from issuing new standards penalizes these forward-looking companies who do not want to see the rules changed in the middle of the game.

DOE is completing a review of the standard-setting process and will soon be proposing a number of improvements. I believe they will be following some of the recommendations put forward by concerned manufacturers. The moratorium that was inserted in both the House and Congress into the Fiscal Year 1996 appropriations bill has not yet taken effect. It's not in law, but DOE is taking constructive steps to improve the standard-setting process.

Mr. NETHERCUTT. Okay. I think you're about out of time, and if we could just finally close your statement, that would be great.

Mr. GELLER. Sure. I was just to the last couple of sentences.

Mr. NETHERCUTT. Great.

Mr. GELLER. So, basically, we're urging the subcommittee to oppose any further attempt to adopt a moratorium on appliance standards in the Fiscal Year 1997 bill. It's not fair to the responsible companies. It's not fair to the States who have bought into the Federal standards process, and it's not fair to consumers.

And we urge you to provide some additional dollars to DOE in this area, so that they can get back on track there. There's a big backlog of standards, and they need the modest funds to get those standards out.

Thank you very much.

Mr. NETHERCUTT. Thank you, sir.

[The statement of Mr. Geller follows:]

The American Council for an Energy-Efficient Economy is a non-profit organization dedicated to advancing technologies, programs, and policies that improve energy efficiency. We appreciate the opportunity to appear before the Subcommittee. In our comments today, we would like to discuss the rationale for and benefits from DOE's energy efficiency programs broadly speaking, as well as comment on one particular issue -- appliance efficiency standards. As in the past, we will provide specific recommendations concerning priorities within the energy efficiency area to Subcommittee staff once the FY97 budget request becomes available.

Energy Efficiency R&D, Demonstration and Deployment Programs

DOE's energy efficiency programs advance innovative, cost-effective technologies, create jobs, save consumers and businesses money, and protect the environment. DOE is working in partnership with hundreds of private companies and universities to develop, demonstrate and deploy a wide range of new energy efficiency measures. These energy efficiency measures produce revenues and support jobs at the companies that make and install them. They produce energy bill savings for the consumers who use the measures. And they reduce pollutant emissions at a net economic savings rather cost, thus making energy efficiency a cost-effective pollution prevention strategy.

A number of energy efficiency measures that DOE helped to develop and promote are now yielding enormous benefits to the nation. For example, DOE helped to develop and commercialize high-frequency electronic ballasts. Over 100 million electronic ballasts were produced and sold in the United States during 1989-95. ACEEE estimates that these ballasts provided about $1.2 billion in additional revenues for manufacturers, about $700 million per year in lower electricity bills for consumers as of 1995, an 8.7 million metric ton annual reduction in carbon dioxide emissions (the main cause of global warming), and a 54,000 ton annual reduction in sulfur dioxide emissions as of last year. In another example, we estimate that low-emissivity windows sold as of 1995 have generated nearly $2 billion in additional revenues for U.S. glass and window manufacturers while lowering carbon dioxide emissions by 3.8 million metric tons last year.

ACEEE strongly endorses increased funding for DOE's energy efficiency programs along the lines proposed by DOE in the forthcoming FY97 budget request. We realize that funding for non-defense discretionary programs is very tight and that the Interior bill overall is not likely to be increased in FY97. However, we ask that energy efficiency programs be given a higher priority by the Subcommittee and the Republican-led Congress in FY97, and that these programs not be subjected to a disproportionately large cut as is the case in the FY96 bill. We believe that energy efficiency programs deserve higher priority on at least three grounds.

First, these programs are a success. DOE has a proven record of helping turn engineering concepts into viable energy efficiency technologies. In addition to the examples of electronic ballasts and low-E windows mentioned above, DOE has helped manufacturers of appliances, heating and air conditioning equipment, and commercial refrigeration systems greatly improve the energy efficiency of their products. DOE has helped the steel, paper, chemicals, and other heavy industries improve the productivity, energy efficiency, and enviromental performance of key industrial processes. DOE has stimulated the development of new, high-tech ceramic materials which are now being used in a wide range of industrial and transportation applications. DOE also is helping to remove the barriers that inhibit the widespread adoption of cost-effective energy efficiency measures once they reach the marketplace through the Motor Challenge program, Climate Wise program, technology introduction partnerships, and similar activities.

Second, these programs make sound economic sense. Spending federal dollars on energy efficiency R&D and promotion is a good investment for the government. Federal expenditures are paid back when companies cut their energy bills and sell energy efficiency measures, thereby increasing their income, profits, and income tax payments. For example, ACEEE estimates that companies making three successful technologies which DOE helped to develop (electronic ballasts, low-E windows, and high efficiency supermarket refrigeration systems) have already realized $3.5 billion in additional revenues and have paid around $150 million in additional federal income tax as a result. Federal expenditures are also paid back as the government reduces its own energy bills. And federal dollars are saved as more workers are employed in a more energy-efficient and productive economy.

Third, these programs are good for the environment as well as for consumers and businesses. Energy efficiency programs should be a cornerstone of both Republican and Democratic environmental policy. Indeed these programs received strong bipartisan support prior to the start of the 104th Congress. A front-page story in the Wall Street Journal on March 5, 1996 commented "The environment is rapidly developing into a wedge issue that threatens Republican candidates". In that article, Linda DiVall is quoted as saying "Most disturbing is that 55% of all Republicans do not trust their party when it comes to protecting the environment". If Republicans now in Congress want to improve their environmental record and image, there is no better place to start then by restoring some of the deep cuts made in DOE's energy efficiency programs.

We recognize that it will be very difficult to restore all of the roughly $200 million cut from energy efficiency programs in FY96 (compared to FY95). However, if the Subcommittee and Congress are willing to take a significant step in this direction, we are ready to work with you in identifying the most beneficial and deserving programs.

Appliance Efficiency Standards

I would like to devote the remainder of my testimony to discussing and defending appliance efficiency standards. In our view, appliance standards have been one of the most effective and successful actions ever taken by the Federal government to improve energy efficiency. Appliance standards save consumers money and reduce pollutant emissions in a highly cost effective manner. We oppose the moratorium on new standards adopted by the Congress in FY96, and we strongly urge this Subcommittee and the Congress not to repeat this action in the FY97 Appropriations bill.

Appliance efficiency standards establish a reasonable floor on new product efficiency. Standards levels are based on in-depth analysis of technical feasibility and cost effectiveness to both consumers and manufacturers, as required by the National Appliance Energy Conservation Act (NAECA). Standards provide a level playing field which all manufacturers have to meet, allowing first cost increases to be passed on to consumers without putting individual companies at a competitive disadvantage in the marketplace. Each manufacturer has the flexibility to meet the performance standards through their preferred set of technical improvements. And the standards, which apply at the point of manufacture or import, are very easy to enforce.

Appliance efficiency standards provide enormous benefits. According to a recent ACEEE report which I would like to submit to the Subcommittee, standards already adopted are expected to save consumers $132 billion net over the lifetime of products effected by the standards (i.e., during 1990-2030), with an overall benefit-cost ratio of over 3:1. These figures, by the way, are based primarily on analyses conducted by DOE. The net benefit is equivalent to about $1300 per household on average. In some cases, the efficiency improvements mandated by standards have been achieved with little or no increase in first cost to the consumer. The electricity savings from standards are expected to displace the need for 31 large (500 MW) baseload power plants by 2000 alone. And by reducing energy use, appliance standards cut emissions of a wide range of pollutants. For example, standards already adopted are expected to cut carbon dioxide emissions by 107 million metric tons per year by 2000. This is equivalent to removing around 15 million automobiles from the road. The electricity and environmental benefits will increase substantially after 2000 as the stock of existing appliances turns over.

Further cost-effective appliance efficiency standards could add significantly to these benefits. DOE is many years behind in meeting statutory deadlines in NAECA for issuing new standards, and DOE is falling further behind due to the FY96 moratorium. Consumers lose billions of dollars of savings each year that DOE fails to issue the new standards that are required by NAECA.

As far as we know, DOE is prepared to enact new standards on refrigerators, freezers, fluorescent lighting ballasts, and room air conditioners in FY97 if they are not prevented from doing so by the Congress. Reasonable new standards on these products based on rigorous analysis as required by the law, including standards on refrigerators and freezers nearly identical to consensus standards which all manufacturers agreed to and recommended to DOE in November, 1994, could save around 35 billion kWh/yr by 2015, equivalent to the power supplied by 14 large (500 MW) power plants. Consumers would save about $30 billion over the lifetime of products affected by these standards. Pollutant emissions from burning fossil fuels would be reduced by additional millions of tons. In addition, if the moratorium is not repeated, DOE could move forward with proposing new standards on other products such as central air conditioners, water heaters, and clothes washers as required by NAECA.

National standards were previously supported by a wide range of manufacturers as a way of avoiding a patchwork of state standards. States agreed to support federal preemption of state standards as long as DOE and the Congress did its job in enacting stringent national standards that meet reasonable cost effectiveness criteria. Now that the Congress has become less supportive of regulations in general, some manufacturers such as GE and Magnetek prefer to block any new federal standards from being adopted. But not all manufacturers are engaging in political opportunism -- companies such as Whirlpool and Carrier are conducting substantial R&D and are willing to further increase the efficiency of their products. These companies support continued prompt implementation of NAECA. Preventing DOE from issuing new standards penalizes these forward-looking companies who do not want to see the rules changed "in the middle of the game".

Given the recent controversy surrounding appliance standards, DOE has instituted and is now completing a review of the standards setting process. Numerous manufacturers as well as public interest groups are participating in this review. DOE will soon be proposing a number of improvements in the standards setting process including some recommendations made by concerned manufacturers. These improvements could include more consultation with interested parties as new standards are being developed and further analysis of issues such as impacts on manufacturers. Even though the FY96 moratorium has not yet taken effect, DOE appears to be taking some constructive steps to improve the standards setting process.

In summary, we urge the Subcommittee to strongly oppose any further attempt to adopt a moratorium on new appliance standards. The moratorium is unfair to the responsible companies who have been investing in more efficient products in anticipation of new standards. It is unfair to the states who have accepted federal preemption of state standards in return for periodic updates in federal standards. And it is unfair to consumers who stand to lose billions of dollars every year DOE is prevented from issuing new federal standards. Along with allowing DOE to get back to setting reasonable standards, we strongly urge the Subcommittee to fund the appliance standards program at the level proposed by DOE in FY97 so that DOE can both address the back log of standards rules and conduct the further workshops and analyses consistent with the outcome we expect from the process review.

Thank you again for the opportunity to present this testimony. I would be happy to respond to any questions you might have.

THURSDAY, MARCH 7, 1996.

NEH

WITNESS

PAGE PUTNAM MILLER, NATIONAL COORDINATING COMMITTEE

Mr. NETHERCUTT. National Coordinating Committee, Page Putnam Miller. Please come forward. Welcome to you.

Ms. MILLER. Thank you. I am the director of the National Coordinating Committee for the Promotion of History. This is a coalition of 50 historical and archival organizations, and I'm here today to testify on the budget for NEH in the next Fiscal Year.

We are recommending the President's request of $136 million. The NEH has experienced a cut of almost 40 percent this past year, and in this amount $136 million, we're recommending a partial restoration, but it would still be 20 percent less than the Fiscal Year 1995 level.

We support NEH because of two core functions performed by this agency. The first is the support of scholarly research in the humanities, and the second is the dissemination of that knowledge. In the discussion yesterday, and I know you were here yesterday, as I was, a number of these projects came up. In contrast to research in the sciences, the biological and the physical sciences, the humanities do not require expensive laboratories and a lot of expensive instruments, but they do require some research tools that take a national agency to stimulate the funding and evaluate these projects. And I think that these were mentioned yesterday.

For instance, the additions of "The Presidents," those documentary additions—one of the premiere historians today, Edmund Morgan, has called these scholarly additions "the major scholarly achievement of American historical scholarship in this century." And they do allow students who would not have a chance to use these documents, because they're scattered all over the country, to have a chance in these volumes and microfilm to have access to the primary sources.

Another example of a research tool that would be the equivalent to a very expensive equipment is the newspaper project. That was started in 1982. The goal of that is to put 224,000 newspapers on microfilm. Some small towns, like there's a small town in Iowa that now only has 300 people, but between 1876 and 1923 it had 9—excuse me, 12—newspapers, and you can imagine the resources for historians who are studying the culture of the area, the economy of the area, as well as genealogists. It's wonderful for local history.

Another example are the brittle books. There is no agency or institution that was willing to tackle that problem, and, as you know, that's a 20-year project.

Another example of these research tools that are so important for the study of the humanities that NEH supports is the "Guide to Historical Literature," which is an annotated edition of 27,000 articles and books and history, and is so useful to any student of history.

The above examples are just some examples of those that are funded by NEH that enhance the study of the humanities, but these are being cut and curtailed by the budget cuts. As Sheldon

Hackney said yesterday, probably 30 percent of the presidential papers projects, the scholarly editions, will have to be cut this year. There are 20,000 fewer brittle books that will be microfilmed this year, and there are 230,000 pages from the disintegrating print of the newspaper project that will not be able to happen this year because of the budget cuts.

A second part, though, of the NEH program that I want to talk about is the dissemination of this knowledge, and there are many, many projects, but one that I might mention is "The Many Realms of King Arthur." This is a traveling exhibit that's sponsored by the American Library Association and the Newberry Library, and it's going to 62 local libraries and university libraries, and it's just had a phenomenal popularity with all age groups. And it's an occasion for the programming that deals with architecture and castles and knights and magic and literature and opera, and all kinds of things are sort of related to these legends of King Arthur.

But the NEH disseminates, not only through these national programs, but also through the State humanities councils, and they are a wonderful example of the kind of partnership that exists between the grassroots and these national programs, because it's at the State humanities councils that you have scholars in the individual States that bring the research that's being done on the national level to the public.

In closing, I'd like to just address two issues that came up in the hearing yesterday. One was the issue of block grants, and I think that we need to realize that the State councils are not State agencies, and while they do very efficient and wonderful work, they are not in a position to sponsor the kind of large research projects that I just mentioned.

A second issue concerns reauthorization. We know that it's a goal of this committee to appropriate only those programs that have been authorized, and I'd like to urge you to consider including in the appropriation language some authorization language because it doesn't look like this bill is going to be authorized before you have your markup. This has been a practice in the past, and I know it's not the most—probably the best way to approach on reauthorization, but we would appreciate your consideration of it.

Mr. NETHERCUTT. Thank you very much. I wish we had more time. It's a tough financial climate for all of us; we'll do the best we can.

Ms. MILLER Thank you very much.

Mr. NETHERCUTT. We appreciate your testimony. Thank you.

[The statement of Ms. Miller follows:]

NATIONAL COORDINATING COMMITTEE
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Dr. Page Putnam Miller
Director

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Testimony of
Page Putnam Miller, Director of the National Coordinating Committee for the Promotion of History

Before the

Subcommittee on Interior and Related Agencies
of
the Appropriations Committee
of the
U.S. House of Representatives

on
March 7, 1996

I am Page Putnam Miller, Director of the National Coordinating Committee for the Promotion of History, a consortium of fifty historical and archival organizations. Mr. Chairman, on behalf of the NCC member organizations and particularly the American Historical Association, the Organization of American Historians, and the Society of American Archivists, I thank you for the opportunity to come before this committee.

I am here today to request funding in FY'97 for the National Endowment for the Humanities (NEH) at a level of $136 million, the President's request. We are aware that this nation is facing a very large budget deficit and that there must be cuts in the budget. NEH has experienced a cut of approximately 40% this year from last year's levels. In asking for a partial restoration of funds we are requesting a funding level of $136 million which is still 20% less than the FY'95 level of $172 million. We urge support for NEH because we are strongly convinced that the strength of our nation and the quality of our civic life are rooted in the humanities and in an understanding of our cultural heritage. We are also convinced that private foundations, which currently give less than one percent of their funds to the humanities, cannot be counted on to provide the same level of critical financial assistance previously provided by NEH.

Funding for NEH is important because of two core functions performed by this agency. These are: first, support of scholarly research in the humanities and second, the dissemination of that knowledge. I wish to talk briefly this morning about these two core functions

In contrast to research in the biological and physical sciences, scholarship in the Humanities does not generally require expensive instruments and laboratories. But humanities scholarship does require research tools. The development of the research tools requires national collaboration and extensive funding. For the past three decades the NEH has played a crucial role in developing these humanities research tools, tools such as historical documentary editions, preservation of 19th century newspapers, the preservation of brittle books, and bibliographic resources such as the Guide to Historical Literature.

NEH grants that fund the editing and publications of the writings and papers associated with important national historical leaders provide a key underpinning for the study of history. These editions are to the humanities what expensive, precision instruments are to the sciences. The preparation of these editions is a complex task that takes many years of work by scholars with a high level of specialization. Once finished they provide in a set of volumes or micro-film primary documents that are scattered about the country and the world in many locations. Many students and scholars can not afford to travel to several depositories to see these materials. Yet through these authoritative and annotated editions, students, scholars, and the American public have access to these documents. Edmund S. Morgan, one of the premiere historians of American History, recently wrote a review of a new book about George Washington. In this review he refers to the publication of the definitive edition, fully annotated, of Washington's papers, and he calls the preparation of these documentary editions "the major scholarly achievement of American historical scholarship in this century."

Another invaluable historical research tool is the NEH's United States Newspaper Program which was initiative in 1982. This is another long term and very ambitious project that only an agency such as NEH could sponsor. When the project concludes it will have created bibliographic records for approximately 224,000 newspapers and will have microfilmed approximately 54 million pages of disintegrating newsprint. Newspapers are a rich resource for the study of American history and particularly for understanding the development of small towns and regions. Many small towns previously had multiple newspapers. A small town in Iowa, David City, with a current population of 300, had twelve newspapers between 1876 and 1923. NEH's role in preserving this part of American history is the equivalent to building a state of the art scientific laboratory.

There has been considerable discussion during NEH hearings about the brittle books project. But it is important to state here again that this project of preserving books -- with significant research potential -- on microfilm before they become so brittle that they disintegrate is a very ambitious one. No agency, except NEH, was willing to tackle a project of this size. It is a 20 year project with the goal of preserving 3 million brittle books. As the author of The Guns of August, Barbara Tuchman, has said, "Books are the carriers of civilization." The preservation of brittle books contribute a major research tool for the study of the humanities.

Large collaborate projects that develop bibliographic tools are also an example of the way

NEH provides aids for the study of the humanities that are equivalent to expensive scientific research instruments. The Guide to Historical Literature, a project of the American Historical Association, received significant funding from NEH. The American Historical Association then used this money as leverage to secure additional funding from the Rockefeller and Mellon Foundations. This project involved the development of an annotated listing of 27,000 works regarded as the best and most authoritative books and articles in every field of historical scholarship. It was an elaborate project, involving several years to complete and the participation of a large team of historians and editors. It was published last year by Oxford University Press and is an invaluable research aid for anyone studying history.

The above examples are just a few of the many projects funded by NEH that provide invaluable research tools for the study of the humanities. The cuts of the last year have significantly reduced NEH's ability to move forward on these projects on which the study of history so much depend. Sheldon Hackney, the Chairman of NEH, has indicated that as many as 30% of the presidential papers and editions project will not receive continued funding, 20,000 fewer brittle books will be microfilmed this year postponing the completion of the project in 20 years. Additionally the NEH estimated that 230,000 pages of disintegrating pages of historically significant newspapers will not be microfilmed this year because of sharp budget reductions.

The second part of NEH's core function is the dissemination of knowledge in the humanities. While there are literally hundreds of examples that could be used, let me focus on the touring exhibit "The Many Realms of King Arthur," an exhibition organized by the American Library Association and the Newberry Library in Chicago. This exhibit is traveling to 62 public and university libraries throughout the United States. It explores the legend of King Arthur from its origins in the Middle Ages to its appearance in 20th century novels, films and video games. It is based upon Arthurian materials in the collections of the Newberry Library and the New York Public Library. What has been so special about this exhibit has been its ability to reach broad intergenerational audiences. "The Many Realms of King Arthur" shows the diverse forms in which the stories have appeared, among them poetry, drama, opera, popular songs, musical theater, film, dance and children's literature. Libraries plan a series of programs in conjunction with the exhibit. These include book discussions, films, medieval costume contests and parades, brass rubbings, storytelling, armor and jousting demonstrations, and slide shows on art works and castles. A summary report of the exhibit at the Kemp Public Library of Wichita Falls, Texas stated: "You had to be here to see the eyes of the children or the approval of the patrons to get the full effect of what this exhibit meant to our community." This report also emphasized that it would have been impossible to have had this exhibit if it were not for the funding for NEH.

The NEH fosters the dissemination of knowledge by national public programs such as the "Many Realms of King Arthur," and also by the work of the state humanities councils. These councils create a strong presence in every state for the humanities and provide a grass roots partnership for the dissemination of the research developed through NEH's national initiatives. Scholars in each state, in collaboration with the libraries, museums, schools, universities, and historical societies, support which is sometimes referred to as "the parallel schools -- a burgeoning array of exhibits, films, interpreted sites, and public programs of all kinds. State Councils are an important vehicle for bringing to the pubic the latest research in the humanities. A representative of the State Councils is here today to talk specifically about state projects, but I wish to stress the key role that the state councils play in the dissemination of humanities scholarship.

In closing, I wish to speak to two issues that emerged in yesterday's hearing -- the possibility of shifting NEH funding to state block grants and the need to secure reauthorization legislation for NEH.

First, on the issue of block grants, generally the concept of block grants is to reduce the federal role by giving the money directly to the states to manage. While the state humanities councils are efficient and effective managers of grant funds, they are not state agencies. Furthermore, they are not in a position to undertake the development of expensive and complex research tools such as the ones I discussed earlier -- the funding of documentary editions, the enormous newspaper preservation project, the preservation of brittle books, or the preparation of bibliographic resources such as the Guide to Historical Literature. By far the two greatest concerns about shifting to block grants are: first, that the major national projects could not be supported by a single state and second, that the national peer view system of NEH that gives its seal of approval -- that then is used to leverage private funds -- would be lost.

The second issue is concerning reauthorization. We know that this committee has set a goal of appropriating funds only for those programs that have been authorized. It appears at this point that there will be no authorization legislation passed prior to the mark-up and vote on the Interior appropriations bill. We urge you to include reauthorization language in the appropriations bill. While this is not the most preferable route for reauthorization, I understand that authorization for NEH has been accomplished this way in the past.

In closing, I thank you for the attention and fair hearing that you have given to NEH. I appreciate this opportunity to share with you the thinking of the fifty member organizations of the National Coordinating Committee for the Promotion of History and I urge an FY'97 appropriation for NEH of $136 million..

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

MICHAEL DICKENS, IBACOS

Mr. NETHERCUTT. IBACOS, Michael Dickens. Welcome, sir. I'm sorry I mispronounced it.

Mr. DICKENS. No problem. Well, my name's Michael Dickens. I head that group, IBACOS. It stands for Integrated Building and Construction Solutions. In essence, it's an alliance of leading companies working together to help bring about better housing.

My background is from General Electric from the plastics business. I spent the last 10 years applying design and technology to the house, and since 1991, formed this alliance, in conjunction with Carrier, U.S. Gypsum, and several of the large companies, like Owens Corning, to take a systems view of the house. And our belief is while 20 percent of the Nation's energy use goes in housing, we can bring immediate impact to society and consumers by helping them get a better home. So we've been doing the R&D and formed a relationship with the Department of Energy two and a half years ago, in essence, to create a new public-private partnership in housing.

If you look at home-building for a moment, there's about a million single-family homes, close to 1.2, 1.3 million homes new built per year. There are about 50,000, 60,000 builders. There are another 100,000 or more small trade suppliers to it. None of them really innovate, and we believe it's an absolute crime that the most important product in everyone's life, the home, if you're lucky enough to afford one, is the most poorly built and least affected by innovation.

So that's our charge. We knocked on the door of DOE three or four years ago and said, "Let's create this win-win partnership. Every dollar you throw in, we'll throw $2 of funds and resources."

In essence, we take the integrator role, creating the guidelines and producing the prototypes, and then working in the field with builders to make it happen. We have a vision for what we call EQA homes, more energy efficient, environmentally responsive, higher quality, quickly built, more affordable, and at the same time more adaptable to the lifestyles of the homeowners.

We have an innovation center in Pittsburgh where we bring some of the best minds in housing together to try and help us in this alliance. We have a couple of homes built in Pittsburgh where we used a National Homebuilders house as the model and showed how we could improve the energy efficiency of that home by 42 percent.

Mr. NETHERCUTT. Let me interrupt you. Can the houses be built cost-effectively?

Mr. DICKENS. Yes, yes. Our goal is the same price or less. It must be, because builders are so stringent on their costs; they're very unusual people. And unless it's the same or less cost, no innovation will really be introduced.

We've then gone out in the field with groups like Pulte and groups like RGC from California to try and introduce these innovations into one program of 250 homes in California, a couple of regions with Pulte up to 1,000 homes, and we've got half a dozen on the programs ongoing, again, with leading builders to hold their hand and show them how it's done.

In closing, I'm absolutely a strong supporter of what DOE at last is starting to do with their building technologies, and certainly in the energy efficiency and renewable energy group I think this alliance format, of which we were the pioneer guinea pig for them, and then they formed three other similar groups in their Building America program, I think is a great use of resources and helps the consumer ultimately. We have a desire to create a better home for the buyer, and I'm certainly a strong advocate of it. So that's why I wanted to voice my support and get you to keep funding it and keep supporting it.

Mr. NETHERCUTT. The 2-to-1 ratio makes sense when you're dealing with scarce Federal dollars. We'll do the best we can this year. I appreciate your testimony today.

Mr. DICKENS. Thank you.

Mr. NETHERCUTT. And I'll make sure your written statement is part of the record.

Mr. DICKENS. Thank you, and I'll leave a brochure.

Mr. NETHERCUTT. Thanks very much.

Mr. DICKENS. Thanks very much.

[The statement of Mr. Dickens follows:]

Testimony of Michael Dickens before the Subcommittee on Interior & Related Agencies Committee on Appropriations
March 7, 1996

Good Afternoon, my name is Michael Dickens. I am the CEO of Integrated Building and Construction Solutions, or IBACOS. I am here today to express my support for continued funding for residential energy efficiency research & development at the U.S. Department of Energy. Residential energy use comprises almost 20% of our nation's primary energy use - efforts led by DOE to increase efficiency in this area have one of the most immediate and substantial impacts on reducing energy use. DOE is using a cooperative approach with the home-building industry where DOE funds initial research, and industry funds the application and market implementation of that research. This approach effectively maximizes DOE and industry resources so that more direct benefits to the consumer are realized than if each were acting separately.

I would like to offer some examples of successful advances in building technology that have been fostered by Federal support, and why continued support can bring returns from tax dollars invested This is especially important in today's climate of fiscal responsibility, and especially so in an industry as complex as home-building.

The home-building industry is one of the leading indicators of the nation's economy. Its well-being is critical to maintaining our confidence in the national and global economy. It is a very diverse, fragmented industry comprised of over 130,000 organizations, of which most are small building companies, that ultimately must provide affordable products for the consumer. Home-building is a very complicated and inefficient process involving builders, trades people, architects, component manufacturers and suppliers, among many others. Such an environment makes it very difficult for one company involved in one facet of the industry to introduce a new technology or product into the process. It requires a very coordinated, integrated effort to make any impact and today there is very little incentive for the individual builder to do this, or to invest in energy efficient research. The building industry is a good example of where consolidating resources and aligning efforts can benefit many players in the value chain and ultimately, the homeowners who buy and operate the homes. IBACOS plays a leadership role in the research of integrated building design and construction processes and has pulled together an alliance of several major companies to provide solutions that these small businesses can use to prosper and grow.

IBACOS is a unique research and development organization that harnesses the best of today's manufacturing and energy technologies into a coherent new approach to home construction. It is funded and supported by some of the leading companies in the housing industry: GE Plastics, a world leader in engineering thermoplastics; Burt Hill Kosar Rittelmann Associates of Pittsburgh, PA, an architectural and engineering firm with broad experience in architectural building and energy systems; USG Corporation of Chicago, IL, a world-wide manufacturer of engineered gypsum materials and building products; Owens Corning of Toledo, OH, specializing in total building and insulation systems; Carrier Corporation of Indianapolis, IN, a leading manufacturer of heating, cooling and air conditioning equipment; Molex of Lisle, IL, a global Fortune 500 manufacturer of electronic, electrical, and fiberoptic interconnection systems; and GE Appliances, a leading global manufacturer and marketer of major kitchen, laundry, and room air appliances. IBACOS also works with a Builders Council that is comprised of builders from all over the country that range from small companies building 20 homes per year to large companies that build over 10,000 homes per year. This Council provides added expertise and a "real world" perspective to ours and DOE's efforts. All of IBACOS' member companies joined in this alliance program, and continue to play a key role within it, due considerably to the participation of the Department of Energy. To them, DOE support affirms the idea that IBACOS represents the interests of the entire home-building community and homeowners, and provides the continuity needed to pursue the long-term vision of IBACOS, DOE and each member company involved.

IBACOS brings a new vision to home-building with a goal of creating a new standard of excellence and a whole new way of buying, designing, detailing, building and using homes in the future. At our Innovation Center in Pittsburgh, PA, a multi-disciplined team of engineers, architects, industrial designers and builders develops building systems, and establishes design and integration guidelines for bringing them together. With DOE, IBACOS developed the concept of 'EQA'™ - homes that are Energy Efficient, environmentally responsive, high Quality, Quick to build, yet Affordable and Adaptable to the occupants' changing needs. Along with its member companies, IBACOS has already built test and demonstration homes. The lessons learned are helping builders create their own 'EQA' homes and communities.

I would like to review some of the successes of DOE's alliance with IBACOS. These programs would not have been possible without the partnership structure that DOE has developed with private industry. By sharing costs, important research and development can be conducted, and with additional funds from the private sector, it is possible to carry that research further into the testing and market introduction stages. The concept of shared costs helps break down the barriers to innovation and brings new technology to market, permanently, at a faster rate than individual efforts on the part of DOE or private industry alone.

DOE and IBACOS can boast a number of innovations that already affect builder approaches to home-building. Our Innovation Center features a "Technology Classroom" that has full-size residential structures that are used in a workshop atmosphere to introduce new innovations and techniques to builders, trades contractors, code groups and suppliers. At the Innovation Center, IBACOS researchers have developed a number of home-building concepts that have already been tested in projects funded by our member companies. Two identical looking "LAB Homes", A and B, located in the Pittsburgh area continue to be invaluable resources. After two seasons of performance analysis by the National Renewable

Energy Laboratory and Burt Hill, results showed that applied IBACOS concepts can dramatically reduce building thermal loss, and lower energy use and operating costs for the homeowner. The changes to IBACOS LAB Home B resulted in a reduction in peak energy demand of 42%, below a leading national builder's house, LAB Home A, that already performed better than the U.S. median new home stock.

A 1995 field application project with Pulte Homes; a national builder of over 10,000 homes annually, offered the opportunity to begin to transfer IBACOS approaches to leading builders. Sessions with Pulte's subcontractors, designers, site supervisors, construction managers and local code officials highlighted a series of opportunities for improving performance, comfort and energy efficiency. A national strategic alliance with Pulte has been established to further drive the development of the applied design and engineering processes into five regions of the country. Recommendations have been given to two business units in the mid Atlantic and one business unit in Illinois, impacting a market of 1000 homes. With full implementation, the current load would be reduced approximately 30%. Additional regions in the Southeast and Southwest are planned next.

IBACOS is also working with RecreActions Group of Companies (RGC), one of the nation's leading market-driven companies on a community in Rancho Santa Margarita, California. IBACOS provided building systems designs and solutions in over 225 homes beginning in 1995 increasing their homes' energy efficiency by 37% while lowering their costs and expanding home ownership opportunities. IBACOS will conduct another 8-10 joint development programs in 1996 with leading builders in various U.S. regions. With 60% of the home construction occurring in the Hot and Hot humid climates of the United States, the focus of an additional IBACOS LAB Home, C, in 1996 is on reducing the cost of cooling and dehumidifying homes. This house in Austin, Texas has been modified to include the effects of a better envelope and improved equipment, resulting in a 34% reduction in load.

It is important to note that the implementation and construction costs of these projects that I have just described are **not** funded through the Department of Energy. Building and marketing costs are shared by our member companies and various builder partners. No Federal dollars go to any of our industry partners for project implementation or company operations; IBACOS has diversified its funding among those entities that would benefit from this type of comprehensive approach. We currently receive about two dollars of private funds and resources for every dollar of Federal funds we receive. Though that number may fluctuate as research and application needs develop and change, the gains that we have made toward DOE's and our goal of lowering both builder and homeowner costs have far exceeded what individual efforts could do.

Do I see the eventual sunsetting of Federal assistance? IBACOS is a performance-driven program, and receives funding from the Department of Energy in a contractual manner that requires us to meet specified deliverables and goals. That funding would be phased out as those goals are met. We are currently in the third year of an initial four-year project with

DOE. The next phase of DOE's program involves a full integration of the house shell and building subsystems currently under development - after this stage, the full potential of DOE's investments will truly be realized but still with only a limited number of builders. The real challenge is to make this a market-based reality by 2000. IBACOS is well qualified to work with DOE to meet these goals and looks forward to furthering the partnership structure created under DOE's Build America Program.

Continued support and assistance from the Department of Energy is vital. The industry is at a critical juncture ready to assimilate new approaches into the building process. As I mentioned earlier, the concept of shared support with private industry provides the opportunity for DOE to help develop new technologies, and immediately measure its application. Many times the government sets mandates in order to achieve a policy goal, with little regard for its effect on industry operations. We applaud Congress' desire to minimize these regulatory burdens which can compromise an industry's flexibility to use the best approach to meet those national goals. Since the intent here is to improve efficiency in both the home-building process as well as the home itself, partnership programs developed by DOE can help to avoid the restrictive regulatory directives by employing the most productive methods to improving energy efficiency and forwarding the benefits quickly to the homeowner.

The Department of Energy has begun programs within the Office of Energy Efficiency and Renewable Energy that are based on the concept of shared cost. By coordinating research with industry application, the programs addressing residential energy efficiency use limited funds in the most cost-effective manner to advance energy efficiency. With a relatively small investment of funds, DOE can conduct research, leverage the investments in the National Labs, and transfer the cost of demonstration and application to industry. The building industry has proven, through our pioneer alliance, that it is willing to share in the costs of technology innovation in the interest of permanently changing building methods, and raising the quality of its overall product - homes and communities.

This is truly a public and private partnership where combined research, know how and funding is aligned in a positive way, and not in a regulatory way, to help the homebuilding industry.

The ultimate winner of this program is the consumer. As these innovative approaches are adopted by the home-building industry, consumers will be able to live in homes that are more energy efficient, environmentally responsive, of better quality, more affordable and more adaptable to changing lifestyles. In short, consumers will have homes they can live with, not merely within.

I appreciate this opportunity to speak on behalf of IBACOS and the residential energy efficiency programs of the Department of Energy. I will be happy to answer any questions you may have.

THURSDAY, MARCH 7, 1996.

NEA

WITNESS

JANET MARCUS, CITY COUNCIL MEMBER, NATIONAL ASSEMBLY OF LOCAL ARTS AGENCIES

Mr. NETHERCUTT National Assembly of Local Arts Agencies, Honorable Janet Marcus, city council member. Welcome, ma'am.

Ms. MARCUS. Thank you. Good afternoon. I'm really pleased to be here. I appreciate the opportunity to speak in support of the Fiscal Year 1997 appropriations for the National Endowment for the Arts.

Mr. NETHERCUTT. We're delighted to have you.

Ms. MARCUS. As a member of the Tucson City Council since 1987, I'm elected to represent my community on the same kind of issues that you are, such as balancing the budget, economic growth, crime prevention, quality of education for our kids. And today I would like to tell you some ways in which Tucson and its local arts council have used the arts to help us address these broader civic issues.

For example, in the arena of economic growth, last November the Tucson-Pima Arts Council released the findings of an economic impact study entitled, "How Tucson Profits from Museums and Cultural Organizations," and this has been submitted for the record to you.

Mr. NETHERCUTT. Yes, I see it here in the packet. Thank you.

Ms. MARCUS. Yes, and this study reveals that the nonprofit arts community in Tucson is one of the city's top 10 employers. In fact, the arts in Tucson are viewed by business leaders as assets in attracting business development. According to the chairman of the Greater Tucson Economic Council, "a thriving arts community is a critical tool in luring new businesses." The Hughes missile companies and the Microsofts of the world want to move to cities where their employees will be satisfied.

Mr. NETHERCUTT. We're going to keep them in Seattle, though. [Laughter.]

It's all right; nice try.

Ms. MARCUS. Well, before Microsoft decided to even open a technical support center in Tucson, which will eventually employ 1,200 people——

Mr. NETHERCUTT. Sure. Sorry to interrupt you.

Ms. MARCUS. That's okay—the city insisted—the company insisted on information about our local arts activities.

The arts are also, we feel, a key factor in helping us reduce crime. The arts helps redirect our youth away from criminal behavior and toward positive goals that not only improve their overall education, but we feel benefit the community as a whole.

For example, we've had a summer youth employment program called Artworks that incorporates basic curriculum skills, such as math and science, with training in the arts. And last summer the Tucson-Pima Arts Council hired and trained 156 youth between the ages of 11 and 21 to complete 14 community enhancement projects ranging from cleaning up graffiti and constructing a two-story ceramic mural at a public housing development to creating a mosaic mural along a pedestrian overpass.

These youth have created beautiful murals and other things also that are accessible to the entire community. However, I believe that the long-term impact of these programs on the youth is the most important thing of all. The pride that these young people have in what they've accomplished is extraordinary. You probably know this.

And I certainly will never forget one mural dedication ceremony I went to where a young hispanic girl said that, when she grew up and got married and had kids, she would bring them to see this mural that she had created for the city of Tucson when she was a teen.

And as proud as I am of the work that our local arts council does in Tucson, I know our story is not unique. I think every city and rural town in this country is proud of the value and understands the value of the arts in their community. In fact, I've provided the subcommittee with copies of a publication entitled, "Building America's Communities, a Compendium of Arts and Community Development Programs."

These examples all lead me to the conclusion that the arts are a good public investment. However, I'm very concerned that the Federal Government is backing off too far, too quickly, too drastically from its commitments, and neither State nor local government can absorb the kind of disproportionate cut that has occurred.

When I compare the city of Tucson's $612,000 public investment in the arts to the return that we get back through culture, boosts to our economy, reduction in crime, and the educational improvement of our children, I would hesitate to put the arts on the chopping block. I think their value to a community is enormous.

As a local elected official, I appreciate the budget challenges that you face, but I want to urge this subcommittee and Congress as a whole to recognize the full value of the arts in our national, State, and community life. I urge you to take corrective action to remedy last year's disproportionate cuts in the NEA.

And I thank you for the opportunity to speak this afternoon.

Mr. NETHERCUTT. Well, we're delighted that you are here, and thank you for your testimony.

I know in my home town of Spokane, Washington we have—it's not NEA money, but it's teenage art, student art, along the highways and byways, and it is an added attraction.

Ms. MARCUS. Yes.

Mr. NETHERCUTT. So I understand what you're saying. We'll do the best we can. Thanks so much.

Ms. MARCUS. Thank you.

[The statement of Ms. Marcus follows:]

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Testimony in Support of FY97 Appropriations for the National Endowment for the Art
Submitted by the Honorable Janet Marcus
City Council Member, Tucson, Arizona
for
National Assembly of Local Arts Agencies
to
House Appropriations Subcommittee on Interior and Related Agencies
Chairman Ralph Regula

March 7, 1996

Mr. Chairman, and Members of the Subcommittee:

Good afternoon and thank you for giving me the opportunity to speak to you today in support of FY'97 appropriations for the National Endowment for the Arts.

As a member of Tucson's City Council since 1987, I am elected to represent my community on the same kinds of issues that you do, such as balancing the budget, economic growth, employment, city livability, crime prevention, quality of education for our youth, and family stability. In fact, these are the very same issues that rank among the top ten key concerns of our nation's civic leaders. Today, I would like to share with you some ways that Tucson and its local arts council have used the ARTS to help us address these broader civic issues.

Yes, the arts do help civic leaders address a community's economic, social and educational problems.

For example in the arena of economic growth and employment, I'd like to share with you our experience in Tucson. Last November, the Tucson/Pima Arts Council released the findings of an economic impact study entitled ***How Tucson Profits from Museums & Cultural Organizations.*** I have brought copies of the study for the Subcommittee's review.) This study revealed that it only took about 60 of our nonprofit museum and cultural groups to contribute $200 million annually to Tucson's local economy. The study further documented that these 60 cultural groups cumulatively employ 3,545 full and part-time people, paying them more than $16 million in annual salaries. Mr. Chairman, this study reveals that the nonprofit arts community in Tucson represents one of the city's top ten employers.

CAMERA COPY

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In fact, the arts in Tucson are viewed by business leaders as assets to attracting business development. According to Tucson's Chairman of the Greater Economic Council, "a thriving arts community is a critical tool in luring new businesses...because the Hughes Missile Companies and the Microsoft's of the world want to move to cities where their employees will be satisfied." In fact, before Microsoft decided to even open a technical support center in Tucson, employing 1,200 people, the company insisted on information about local arts activities before committing to our city. Tucson regularly competes with cities like Albuquerque and Colorado Springs to attract new business and I must say that the arts and culture are key selling points used by each of these cities. The Tucson Greater Economic Council and Convention Bureau actually use a 9 minute video that showcases the arts in order to recruit new business.

The arts are also a key factor in helping us reduce crime. The arts contribute to re-directing our youth away from criminal behavior and toward positive goals that improve their overall education and that benefit the community as a whole. I'd like to tell you about the great rewards of Tucson's summer **Art Works** program, but first I'd like to thank you for helping to pay for it since funding was made possible through a multi-tier public partnership of NEA federal funding, Arizona state funding, Pima county funding, and Tucson city funding.

Art Works is a summer youth employment program in the arts that incorporates basic curriculum skills, such as math and science, with training in arts skills. Last summer the Tucson/Pima Arts Council hired and trained 156 youth between the ages of 11 and 21 to complete 14 community enhancement projects, ranging from painting a mural on the Water Department building and cleaning up graffiti at the Martin Luther King Housing Development in order to construct a three-story high ceramic mural to creating a mosaic mural along a pedestrian overpass. These programs do not just teach arts skills to youth, they also teach practical math, science and communication skills so that they can learn how to properly construct these large-scale projects.

These youth are creating beautiful murals that are accessible to the entire community. However, I believe the longterm impact of these programs on the youth, themselves, is much more meaningful to the community as a whole. These young people, who represent our future leaders, are being taught to become goal-oriented individuals, responsible workers, analytical thinkers, creative problem solvers, team players, and most importantly good citizens. The pride that these young people have in what they've accomplished is extraordinary.

As proud as I am of the work our local arts council does in Tucson, our story is not unique. I think every city and rural town in this country is proud and aware of the value of the arts in their community. According to the National Assembly of Local Arts Agencies (NALAA), local governments appropriate cumulatively $650 million annually to their local arts councils for cultural programming and re-granting. This is astonishing nationally, considering that there was virtually no local government support for the arts just 30 years ago. And while I would like to think that all of this local support flows simply because it makes good sense, I know that in many cases it is because you, our federal partners, have provided the model programs, the leverage money, or the start-up costs through the National Endowment for the Arts. **Simply put, federal dollars leverage local dollars.**

In terms of the economic impact of the nonprofit arts sector at the national level, the results are very impressive here as well. According to NALAA's ***Jobs, the Arts and the Economy*** study, the nonprofit arts sector alone contributes $36.8 billion to the national economy, supporting 1.3 million jobs (or 1.4% of the American work force) and it returns $3.4 billion to the federal government in tax revenues. **That $3.4 billion is a 34 to 1 return to the federal government's $99.5 million invested in the NEA.**

The Tucson story that I shared with you earlier about our summer Art Works program is also part of a much larger story that is happening in every community in this country. The arts are being incorporated into thousands of community outreach and revitalization efforts nationwide. I've brought with me several copies of a publication entitled, ***Building America's Communities: A Compendium of Arts and Community Development Programs.*** This publication will give you a very good idea of the extent to which the arts are being used as change agents for economic and social improvement in our communities.

These examples all lead me to one point, **the arts are a good public investment**. However, I am very concerned that the federal government is backing off too far from its commitment to this public good. The cultural funding infrastructure in this country is very interwoven and we operate on a delicate balance in sharing responsibility for public funding of the arts at the federal, state and local government levels. Last year's 40% cut to the NEA was simply too drastic and too sudden. Neither state nor local government can absorb this kind of disproportionate cut.

When I compare the city of Tucson's $612,000 public investment in the arts to the return that we get back through cultural boosts in our economy, attraction of new businesses and tourists, reduction in crime, creation of and training for jobs, educational improvement of our children, and enhancement of the livability of our city, I would hesitate to put the arts on the chopping block. I think their value to a community is enormous.

As a local elected official, I appreciate the budget challenges that you face, but I do want to emphasize the importance of the federal and local partnership in the arts. In fact, I would like to urge this subcommittee to modify three areas of the NEA's legislation that has a negative impact on local governments.

1. Re-granting Exemption: As a result of the FY '96 Interior Appropriations bill and conference report last year, local arts agencies are no longer considered part of the NEA's Public Partnership program because Congress only allowed state and regional organizations to re-grant federal dollars. I believe that this is a very large oversight to not allow local governments and their local arts agencies to responsibly re-grant federal dollars. Local arts agencies, representing the interests of local governments, are an integral component to the cultural funding infrastructure of this nation. The federal government should provide incentives for local governments to match federal and state grants by expanding the NEA partnership program.

2. **Underserved Category for Rural and Inner-City Areas:** Currently, these set-aside funds are only accessible to States despite the fact that the objective is to make the arts more accessible in rural and inner city areas. I believe that local governments and their local arts agencies, who represent community interests, should also be able to compete in this category along with their state arts agency partners. This will ensure that all communities representing rural and inner-city areas have an opportunity to provide full access to the arts for its citizens.

3. **Local Arts Agencies Program:** In order to ensure that federal funding for the arts serves the cultural needs of communities throughout this country, I urge you to maintain direct funding for the NEA's Local Arts Agencies Program, which was eliminated to a shadow of itself as a result of last year's devastating cuts and restructuring. Local arts agencies promote artistic excellence, equalize and improve access to the arts, raise additional local government and private funding resources for the arts, and, perhaps most importantly, help promote community development, economic and job growth, and education for children through the arts.

In summary, I urge this subcommittee and the Congress as a whole to recognize the full value of the arts in our national, state, and community life. I urge you to take corrective action to remedy last year's disproportionate cuts to the NEA and the restructuring changes that negatively impacted local governments and their local arts agencies.

Thank you again for the opportunity to appear before your committee.

Attachments: "How Tucson Profits from Museums & Cultural Organizations;" news clips; "Building America's Communities: A Compendium of Arts and Community Development Programs."

THURSDAY, MARCH 7, 1996.

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WITNESS

EDWARD H. ABLE, JR., AMERICAN ASSOCIATION OF MUSEUMS

Mr. NETHERCUTT. American Association of Museums, Edward H. Able, Jr. Welcome, Mr. Able.

Mr. ABLE. Good afternoon, Mr. Nethercutt. How are you, sir?

Mr. NETHERCUTT. Fine, thanks. Welcome.

Mr. ABLE. Being before this committee, I feel not unlike Lady Astor's seventh husband; we've been here so often. [Laughter.]

I just hope I can keep it interesting for you.

Mr. NETHERCUTT. That's okay. Thanks for being with us.

Mr. ABLE. Mr. Nethercutt, I have a brief oral statement. I request that my full statement be entered in the record.

Mr. NETHERCUTT. Certainly. Without objection, it will be.

Mr. ABLE. My name is Ed Able, and I'm president and CEO of the American Association of Museums, the national organization that has served the museum community and its staff since 1906.

Before turning to how Federal cultural agencies help museums serve their communities, I'd like to deal briefly with the question of exactly which communities we're talking about. For too long, I've heard that museums cater to the elite slice of the population. Last year that charge was put before this very subcommittee as a justification for eliminating all museum funding. And researching the sources for the data which purported to support this claim, we found that the numbers cited were not only wrong, they were based on research that was biased and obsolete. Worse, the sources referred to arts audiences, not to art museum audiences, let alone the general museum audience, which includes everything from zoos to children's museums, and which have very different demographics for their visitors.

Museums do serve the whole public, not part of it. In fact, over 40 percent of the Nation's museums are government-sponsored institutions with mandates to serve the entire citizenry. Our audience statistics are impressive: over 600 million annual visits to America's museums. But they don't tell the whole story of how museums benefit their communities and this Nation.

Through research, museums add to scientific, artistic, and historical knowledge. They provide ever-growing resources to our public schools, working with both students and teachers. They are a major stimulus to the economy, as the tourism industry can attest. And, of course, they preserve our common heritage.

My written statement includes several recent examples of events that have drawn attention to the breadth of museum audiences and their impact. I'll refer to only one.

The closing of the Smithsonian, like the closing of the National Parks, not only upset millions of ordinary Americans, it also directed a flood of tourists to Washington's private museums, many of which saw their attendance triple. The Washington Post documented this phenomena concluding, and I quote, "The season of Federal shutdowns has proven that museums are anything but nonessential."

We believe that Federal support is more important than ever in today's increasingly fractious and divided society. At a time when many citizens practice the politics of separateness, when trust in public institutions at so many levels is greatly diminished, museums provide a powerful affirmation of our shared heritage and our value system.

The IMS, the National Endowment for the Arts, the National Endowment for the Humanities, all have played vital roles in recognizing, supporting, and advancing museums' public role. In order to justify the expenditure of taxpayer funds, they have required us to clearly demonstrate our ability to reach out to the broadest audiences. They've spurred the museum community, led by AAM, to establish ever higher standards of museum practice, ethics, and, perhaps most importantly, public accountability.

The agencies have supplied critical support for public policy initiatives. For example, they've sponsored conferences and established awards in the area of museum education. This year they're helping us establish mutually-beneficial and, hopefully, long-term productive partnerships with the travel and tourism industry. Their support and expertise have helped us immeasurably.

The question of Federal support does not exist in a vacuum. Tremendous changes are occurring in our society, not least in our government. As Federal support for many programs shrinks, private philanthropy is being asked to shoulder an impossible burden. Studies show that private giving would have to increase at 50 times its normal rate to make up for losses in public funding. The President's Committee on the Arts and Humanities recently addressed this subject in an impressive report which states, "It is clear that this would increase demands on their limited resources. Private foundations will not be able to replace Federal funds, nor do the trends among other donors indicate that these sources can or will increase their giving. Increased support from State budgets seems unlikely. Giving to the arts by major U.S. corporations is not increasing significantly, and the drop in the size of individual contributions is a worrisome trend not only for the arts and humanities, but for all philanthropy." The same report also touches upon the role of tax policy in encouraging private funding for cultural activities and the dangers that some proposed tax reform plans might pose.

In closing, I would ask you to recognize that the Federal cultural agencies have played a critical role. They have responded to criticism in a constructive manner, and they have absorbed enormous, one might say disproportionate, cuts in funding. Indeed, their funding has not grown in real terms in many years.

We recognize the pressure on you to spread shrinking amounts of funding broadly. On the other hand, we note that Congress and the administration are now negotiating over increased Fiscal Year 1996 domestic spending. Therefore, we would respectfully ask for the maximum possible increase in current year spending on the arts and humanities, and we would hope that you might be able to hold that line in Fiscal Year 1997 funding as well.

Thanks for the opportunity to testify.

Mr. NETHERCUTT. Thank you for being with us. We're going to try our best. There are so many good programs throughout the government; I wish we had all the money that was necessary to do all that we want to do. It's just that we're facing this tremendous $5 trillion debt and all the interest that we're paying on that darned debt could be used for other things.

Mr. ABLE. We are very supportive of that point, Mr. Nethercutt, let me assure you.

Mr. NETHERCUTT. All right. Thank you, sir.

[The statement of Mr. Able follows:]

Good afternoon. My name is Edward H. Able, Jr. I am President and C.E.O. of the American Association of Museums (AAM), the national museum organization that has served America's museums and their staffs since 1906.

Before turning to how the Institute of Museum Services (IMS), National Endowment for the Arts (NEA) and National Endowment for the Humanities (NEH) help museums deliver services to their communities, I would like to deal briefly with the question of exactly which communities we are talking about.

For too long, I have seen others charge that museums cater to a small, elite slice of the population. Last year, that charge was put before this very subcommittee as a "justification" for eliminating funding for all museum activities under your jurisdiction. I knew at the time that the claim is totally inaccurate. After researching the testimony and its sources, we found that the numbers were not only wrong, they were based on research that was both biased and obsolete. Worse, the sources referred to arts audiences, not to art museum audiences, let alone the general museum audience, which includes everything from zoos to children's museums, which have very different demographics.

Let me be clear: museums serve the whole public, not part of it. For over one hundred and fifty years, there has been a consensus that museums are a public good. A rather remarkable fact bears out this assertion: over forty percent of the nation's 8,000 museums are government-sponsored institutions with mandates to serve the entire citizenry in their jurisdictions. Our audience statistics are impressive -- over 600 million annual visits to America's museums -- but even they do not tell the whole story. In point of fact, whether or not any particular individuals actually set foot in a museum, museums provide important benefits to them, their families, and their communities. Museums not only compile information and objects, but through research they add to scientific, artistic and historical knowledge. They provide an ever-growing resource to our public schools, not only through direct work with students but also through teacher training and curriculum development programs. They stimulate an enormous amount of business for our friends in the for-profit sector, as the travel and tourism industry can attest. And, of course, they preserve our common heritage.

We have recently seen several extraordinary examples of how important museums are to a broad public.

- Almost a million people came to see the Monet exhibition at the Art Institute of Chicago, including thousands of students and teachers. (Parenthetically, a joint venture of the Federal Reserve Bank of Chicago and the University of Illinois estimated the economic impact of the exhibition in the local economy at $393 million. Also parenthetically, the federal government indemnified the show.)

- In Akron, Ohio, the art museum, the history museum, the science museum, and the performing arts center, initiated, pushed, and are leading Akron's "First Night" New Year's Eve celebration in 1997. According to the Akron Art Museum's director, "the arts are leaders in turning around the perception of deteriorating downtowns, and we are the reason that people come to Midwestern downtowns now, because they don't come for shopping!" By the way, he also reports that the museum's audience breakdown is split into equal thirds among lower, middle, and upper income individuals. Also by the way, last week the museum was awarded an NEA challenge grant of $150,000.

- The Toledo Museum of Art reported that 234,000 visitors came to see its exhibition The Age of Rubens, 88% of out-of-town visitors came to Toledo primarily to see the exhibition, 45 percent of hometown visitors did not have a college degree; and the show added $22.8 million to the Toledo metropolitan economy. According to an article in *American Demographics* entitled "How Rubens Rocked the Rustbelt,"

> The average resident of Toledo, Ohio, has a lower income and less education than does the average citizen of a sophisticated northeastern city like Boston. Yet earlier this year, Toledo and its midwestern neighbors beat Beantown in their patronage of fine art. After setting attendance records for an Old Master exhibit at the Museum of Fine Arts in Boston, "The Age of Rubens" went to just one other U.S. museum. Between February and April 1994, almost 234,000 people visited the exhibit at the Toledo Museum of Art. That was 15,000 more than in Boston. Toledo achieved this success despite the fact that the metropolitan area is one-fourth the size of Boston ...

The exhibition was supported by grants from the NEA and NEH and indemnified by the Federal Council. The Toledo Museum of Art receives IMS funding as well.

- People stood in line for up to 13 hours to see the paintings of Johannes Vermeer at the National Gallery. As you know, the shutdown of that exhibition even played a role in the epic battle over the federal budget.

- When the Smithsonian shut down, people slaked their thirst for culture at the city's private museums. Attendance at the Corcoran and the Phillips more than doubled, not to mention at many other institutions such as the National Building Museum and the Textile Museum. The Washington *Post* documented this phenomenon, concluding "the season of federal shutdowns has proven that museums are anything but nonessential." Interestingly, the *Post* ran a story just this week citing a recent study that pegged the annual economic impact of non-Federal arts in Washington at $1.4 billion.

From another perspective, we believe that federal support is more important than ever in today's increasingly fractious and divided society. At a time when many citizens practice a politics of separateness, when trust in public institutions at so many levels is greatly diminished, museums continue to provide a powerful affirmation of our shared heritage and value system. Through preservation and exhibition, engaging programming, and rigorous scholarship, museums exert a powerful force for stability. Equally important, they encourage voluntarism and civic participation.

The IMS, NEA, and NEH have played vital roles in recognizing, supporting and advancing museums' public role:

- First, in order to justify the expenditure of taxpayer funds, they have required us to demonstrate our ability to reach out to the broadest audiences.

- Second, they have spurred the museum community, led by AAM, to establish ever-higher standards of museum practice, ethics, and accountability.

- Third, the agencies have supplied critical financial and policy support for initiatives that the museum community itself proposed: for example, they have sponsored conferences and established awards in the area of museum education. This year, they are helping us establish mutually beneficial partnerships with the travel and tourism industry. It is not that we would be totally incapable of accomplishing these tasks ourselves, but that federal support and expertise have made these tasks immeasurably easier, and our progress quicker and with larger impact.

The question of federal support for the arts and humanities does not exist in a vacuum: tremendous changes are occurring in our society, not least in our government. As federal support for a host of social programs diminishes, private philanthropy is being asked to shoulder an impossible burden. According to the national nonprofit umbrella group Independent Sector, private giving would have to increase at fifty times its normal rate to make up for losses in public funding proposed in last year's budget resolution. I mention this only to reinforce my point that we cannot expect private citizens, foundations, or corporations to make up for lost funding in the arts and humanities. Indeed, the President's Committee on the Arts and the Humanities recently dealt with this subject in an impressive report "Looking Ahead: Private Sector Giving to the Arts and the Humanities," which compiled statistics from a wide variety of scholarly sources. The report states

> it is clear that with increased demands on their limited resources, private foundations will not be able to replace federal funds. Nor do the trends among other donors indicate that these sources can or will increase their giving. Increased support from state budgets seems unlikely. Giving to the arts by major U.S. corporations is not increasing significantly, and the drop in the size of individual contributions is a worrisome trend not only for the arts and the humanities but for all philanthropy. Economic growth alone is not a guarantee of increased private sector giving. In the immediate future the small, innovative and community-based arts and humanities groups, the economically fragile companies, scholarly projects, and individual creators are most at risk of losing sources of support.

The same report also touches upon the role of tax policy in encouraging private funding for cultural activities and the dangers that some proposed tax reform plans might pose From a public policy standpoint, it is important to note that even under current law, the indirect tax subsidy particularly favors gifts from wealthy individuals who "tend to support large, well-established institutions in our largest urban centers " Direct federal funding is critical in promoting equity by actively supporting smaller, more rural, less well-established museums

In closing, I would ask you to recognize that the federal cultural agencies have played an important role over the past three decades, that they have responded to recent criticism in a constructive manner; and that they have absorbed enormous -- one might say disproportionate -- cuts in funding In real dollar terms, indeed, they have not grown in many years We recognize the pressure on you to spread shrinking amounts of funding broadly. On the other hand, we note that Congress and the Administration are now negotiating over increasing FY 1996 domestic appropriations by between $5 billion and $8 billion in the upcoming omnibus appropriations bill Therefore, we would respectfully ask for the maximum possible increase in current year spending on the arts and the humanities, and we would hope that you might be able to hold that line on FY 1997 funding as well

Thank you for the opportunity to testify

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

ANNA AURILIO, U.S. PUBLIC INTEREST RESEARCH GROUP

Mr. NETHERCUTT. The next witness will be U.S. Public Interest Research Group, Anna Aurilio. Thank you.

Ms. AURILIO. Hi. Thank you. Good afternoon.

Mr. NETHERCUTT. Good afternoon.

Ms. AURILIO. I am Anna Aurilio. I'm a staff scientist with the U.S. Public Interest Research Group, and thanks a lot for the opportunity to testify here. I'm sure you're familiar with Wash PIRG, Washington Public Interest Research Group.

Mr. NETHERCUTT. Yes, certainly. Yes.

Ms. AURILIO. And I'm sure you've heard a lot today about folks that need funding for valuable programs, and you talk about needing to reduce the deficit. Well, I have ideas for you.

Mr. NETHERCUTT. Great.

Ms. AURILIO. This is the Green Scissors '96 report, and it lists 47 programs which, if they were cut or reformed, would save taxpayers $40 billion. Several of them are under the jurisdiction of this committee, and I thought I would just highlight some of them.

We are part of a unique coalition of environmental groups and taxpayers. We think that we can offer Congress a win-win situation. I heard a previous witness testify about how Republicans think they may have overreached on the environment. Here's an opportunity to cut tax dollars and do something that's good for the environment.

First of all, on energy, U.S. PIRG and PIRGs around the country have long worked to shift away from fossil energy and nuclear energy sources, sources that pollute, toward energy efficiency and clean renewable energy sources. To that end, we do support the Department of Energy's energy efficiency program and respectfully request that they be funded at around $800 million for next year. Unfortunately, we don't have the benefit yet of their Fiscal Year 1997 request. However, we have some ideas of where some of this funding could come from.

First of all, the clean coal technology program, this has been mismanaged. GAO has done numerous reports on it, and there's no reason for taxpayers to fund these kinds of technologies since the coal companies already have an incentive under the Clean Air Act to develop these kinds of emissions-cleaning technologies. If we were to just terminate the projects that have not yet started construction or won't start construction for at least five years after they have been selected, this is one of the problems with the program, is that many of the projects have delayed because there's no market for some of the electricity that will be generated. We could save $912 million. That's a lot of cash.

Second is coal R&D, and one of the projects that this supports is a project to turn coal into liquid fuel. If we're really serious about reducing our dependence on foreign oil, we advocate raising standards for automobile fuel economy standards, as well as those for light trucks. Doing this would save not only oil, but also the average household $576 a year in fuel costs, and that will go to our second point, which is also the petroleum R&D program.

This program funds projects that, for the most part, private industry has already undertaken. And, again, if we're interested in reducing our dependence on foreign oil, let's drill for oil under Detroit.

Going into the other part of the budget that we've looked at is the U.S. Forest Service. We're pretty disappointed that the Forest Service is using our tax dollars to subsidize destruction of our national forests. We're very disappointed that the salvage timber rider was signed into law, and we're seeing now that, far from being a real forest health initiative, the reports that we're getting back from our colleagues in the Northwest and other places is that this rider is being used as an excuse to cut down green trees, and we urge that it be repealed.

Forest Service roads program, we see no reason why taxpayers should build roads into national forests, and the testimony says it all.

Finally, last, but certainly not least, we urge this committee to reject the increase in taxpayer-subsidized logging in the Tongass National Forest. According to GAO, this forest was the largest money-loser over three years, losing $102 million. And, also, according to folks who live up in southeast Alaska, implementing this logging plan, as these riders would suggest, would seriously threaten the commercial fishing and tourism industries, which are the fastest-growing segment of that economy out there. Timber from the Tongass forest only provides 4 percent of the jobs in that area of Alaska.

In conclusion, we hope that this committee will seize the opportunity to save money and the environment. Thank you.

Mr. NETHERCUTT. Thank you.

[The statement of Ms. Aurilio follows:]

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TESTIMONY OF ANNA AURILIO, STAFF SCIENTIST
U.S. PUBLIC INTEREST RESEARCH GROUP
before the
HOUSE APPROPRIATIONS SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES

March 7, 1996

I am Anna Aurilio, Staff Scientist for the U.S. Public Interest Research Group (U.S. PIRG). Thank you for the opportunity to testify on our recommendations for funding cuts in the Department of Energy's (DOE) FY97 budget and the U.S. Forest Service's FY97 budget. While I will focus my statement on opportunities for taxpayer savings, I would like to note that U.S. PIRG heartily supports funding of energy efficiency programs at no less than $800 million for FY97. We also support continuation of the moratorium on mining patenting and on offshore drilling.

U.S. PIRG is the national lobbying office of the state Public Interest Research Groups. PIRGs are non-profit, non-partisan and work on environmental, consumer and good government issues in more than 30 states.

U.S. PIRG is working to cut polluter pork programs -- federal spending or subsidies which destroy the environment at taxpayer expense. PIRGs around the country joined taxpayer, free-market and other environmental groups, such as Friends of the Earth, the Concord Coalition, and Taxpayers for Common $ense in releasing the Green Scissors Report which recommends cutting 47 wasteful, environmentally-damaging programs to save taxpayers $39 billion.

My testimony today will focus on five polluter pork programs highlighted in the Green Scissors Report -- the Clean Coal Technology program, coal research and development, petroleum research and development, Forest Service timber road-building, and timber cutting in the Tongass National Forest. I will also comment on the so-called "salvage" timber rider.

OFFSET

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DEPARTMENT OF ENERGY FOSSIL ENERGY PROGRAMS

As you may know, U.S. PIRG and PIRGs around the country have been working to shift energy priorities from polluting sources of energy such as fossil and nuclear towards energy efficiency and clean, renewable energy sources such as solar, wind and geothermal. Continued subsidies for polluting energy sources create an unfair playing field for clean energy sources. Furthermore, the coal and petroleum industries are mature, lucrative industries. At a time of scarce federal dollars, these industries should be weaned from the federal dole.

The $28 billion-a-year coal industry should also be cut off from the public dole. Coal-burning power plants are a major source of carbon dioxide, a greenhouse gas, and are the leading cause of acid rain. Coal-burning power plants have a Clean Air Act incentive to clean up their act. Taxpayers should not be funding a $2.7 billion Clean Coal program or additional coal research and development programs.

1. CLEAN COAL TECHNOLOGY PROGRAM

The Clean Coal Technology Program should not be continued because it is unnecessary given Clean Air Act market incentives for coal burners to reduce emissions. Furthermore, a 1991 General Accounting Office study found that nearly half of the 32 Clean Coal Technology projects going back to that time has fallen behind schedule, incurred cost overruns or scaled back their objectives. GAO also found that DOE was funding some technologies which would have been commercialized without federal assistance as well as some technologies that were more polluting than existing alternatives.

The Clean Coal Technology program currently supports 45 projects in various stages of progress. We were pleased that Congress rescinded $200 million in the three-year advance appropriation for this program. We recommend that no further taxpayer funds be expended on this program. At the very least, we urge that the committee terminate projects for which construction has not started or will not start for more than five years after program selection. This will save taxpayers more than $912 million over the life of the program.

2. COAL RESEARCH AND DEVELOPMENT

We recommend terminating this program. The FY96 Interior Appropriations Conference report funded this program at $121 million. Particularly objectionable are the coal liquefaction and gasification programs. The production of liquid fuel from coal is uneconomical and environmentally unsound. A 1991 DOE report ranked coal liquefaction next to last in a review of 23 energy technologies. This is an outgrowth of the failed "synfuels" aimed at providing liquid fuels from coal which would be competitive with crude oil prices of "around $25 per barrel in the next decade." If we're worried about dependence on foreign oil, let's take the cheap, environmental way out. Raise fuel economy standards to 45 mpg for cars and 34 mpg for light trucks to save the average household an estimated $576 per year.

3. PETROLEUM RESEARCH AND DEVELOPMENT

We recommend terminating DOE's Petroleum R&D program, savings $60 million annually. Among the beneficiaries of DOE's Petroleum Research and Development program are: Exxon, Chevron, Conoco, Texaco, Amoco, Phillips Petroleum, ARCO, Shell, Schlumberger, and Marathon Oil. The program's final goal is to reduce U.S. oil dependence on foreign oil.

Industry is already conducting much of this work on its own. The Congressional Budget Office's "Reducing the Deficit: Spending and Revenue Options", 1995 points out that "In the area of fossil energy R&D... commercial firms already spend a great deal of money to develop new technologies. The major new technologies for enhanced oil recovery, for example, have come from private industry, not DOE."

U.S. FOREST SERVICE

The Forest Service's Timber program represents a prime example of polluter pork. The Forest Service's flawed accounting practices attempt to hide the enormous taxpayer ripoff being perpetrated in our national forests. According to Robert Wolf, an expert on Forest Service accounting practices who has worked for the Forest Service, the Bureau of the Budget, the Congressional Research Service and the General Accounting Office, combined regular and salvage timber programs lost a staggering $4.2 billion over twelve years. A recent GAO report shows taxpayer losses of $955 million from 1992 through 1994. This figure does not include the costs of the environmental degradation which results from logging.

1. "SALVAGE" TIMBER SALES

This "logging without laws" rider is perhaps the most environmentally-destructive piece of legislation signed into law last year. It is outrageous that this blatant handout to the timber industry was actually part of a budget-cutting bill. Moreover, after only a few months of implementation, it is clear that the purpose of this rider has nothing to do with forest health, the purpose of this rider is to increase the pillage of our public timber. We urge complete repeal of this legislation.

2. FOREST SERVICE ROADS PROGRAM

We also recommend that the Forest Service Roads Program be eliminated, saving taxpayers $95 million based on FY96 funding. There are currently over 369,000 miles of roads crisscrossing our National Forests, which is over eight times the size of the entire

Federal Interstate Highway System. This program exacerbates the chronic losses in the Forest Service's timber program, and should be eliminated. New road-building also causes soil erosion and stream sedimentation, degrades water quality, and fragments wildlife habitat. At a time when Congress seeks to reform welfare, it should start with corporate welfare programs such as the Forest Service timber programs. The Chief Executive Officer of Louisiana Pacific took home over $15 million from 1991 to 1993 - why should our tax dollars go to him?

3. TONGASS TIMBER GIVEAWAY

We urge this committee to reject an increase in taxpayer-subsidized logging in southeastern Alaska's Tongass National Forest. This forest is already the biggest money-loser in the National Forest system. The General Accounting Office (GAO) found that from 1992-1994, the Tongass timber sales lost $102 million. According to the U.S. Forest Service, the levels of clearcutting contemplated in recent legislative riders would increase timber budget outlays by as much as $20 million annually. These riders are environmentally destructive and would threaten commercial fishing and tourism, the fastest growing economic sectors in Southeast Alaska. The Tongass timber only accounts for 4% of Southeast Alaska jobs.

CONCLUSION

In conclusion, we believe that this subcommittee should seize the opportunity to end these polluter pork programs. Thank You.

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

DAVID NEMTZOW, PRESIDENT, ALLIANCE TO SAVE ENERGY

Mr. NETHERCUTT. Alliance to Save Energy, David Nemtzow, president. I hope I said that right.

Mr. NEMTZOW. Yes, you did. Thank you.

Mr. NETHERCUTT. Good, sir.

Mr. NEMTZOW. Thank you, Mr. Chairman.

Mr. NETHERCUTT. Thank you, sir, for being here.

Mr. NEMTZOW. And thank you very much for the opportunity to testify before your subcommittee today on the administration's requested budget for Fiscal Year 1997 for DOE's energy efficiency programs. I'm David Nemtzow. I'm the president of the Alliance to Save Energy. We're a bipartisan, nonprofit coalition of business and government, environmental, and consumer leaders. We were founded in 1977, and we're chaired by Senators Bingaman and Jeffords, as well as your colleagues, Congressmen Markey and John Edward Porter. Over 80 companies belong to the Alliance to Save Energy, including several in your State of Washington, Mr. Chairman.

I'd like to thank Chairman Regula and his fine staff, and the entire subcommittee, for your effective efforts in this past year to stave off the massive cuts in Fiscal Year 1996 appropriations for energy efficiency that were outlined by the Science Committee in the bill that passed that committee and the House, but was not enacted into law.

The DOE efficiency programs are primarily voluntary programs. They spur the development of new energy-efficient technology and work very closely with the private sector to help stimulate and expand markets.

And I also want to thank the subcommittee for trying to keep this bill clean of substantive energy riders. The Parker amendment, which was added later on, is a substantive energy issue which I think belongs elsewhere, not on this bill. In fact, you should know, Mr. Chairman, that it would have defunded work done by Pacific Northwest Lab. They run a superb buildings program. We work with them very closely. They have the top professionals. The Parker amendment would have defunded that work. Luckily, that has not proven to be the final case.

I'm here today to make one simple point, a point that I believe you know well, and I'm not sure that all Members of this body know well. And that is, by targeting energy efficiency programs for disproportionate budget cuts, the House majority is destroying what could be the basis of a forward-looking, free market-oriented, environmental production policy. I mean, quite simply, Mr. Chairman, energy efficiency is a key solution to environmental problems. And as leaders of the House of both parties and the Senate of both parties look for new, creative environmental solutions that are not burdensome to industry, I think there is no better example than energy efficiency.

Just for example, in the area of air pollution, more than 80 percent of all air pollution in our country is created by the production and consumption of energy. It's that simple. And by cutting back, using energy more efficiently, we help to solve our air pollution problems, and on and on through other sectors.

We haven't seen the administration's detailed Fiscal Year 1997 budget request, of course, in this area or in others. Our understanding is that it will be higher than the 1996 enacted, and I know exactly what you're thinking: how are you going to do it and how are you going to fit it into your 602(b) allocations? I'm very sympathetic to that very difficult challenge, but I am here to say that that increase is something that does deserve your support. It's one of the few examples, as you think about this subcommittee and its jurisdiction, again, in which you can have a proactive environmental record and program that's affordable. And I'd like to give several examples of programs, of the many programs in this budget that meet the standard.

One is the area of Federal energy management. By investing just a few million dollars, you can help cut back on the $4 billion that the Federal Government spends every year heating and cooling its buildings. We estimate at the Alliance to Save Energy you could save a billion of that $4 billion with some investments.

One of the best examples in the country, by the way, is Ft. Lewis, Washington, which, as you know, is near Seattle, in which they went in and brought in private companies, made efficiency investments. They're cleaning up the environment. They're saving the taxpayers money.

No. 2, I'd like to mention export promotion work that the Department supports. I don't think I have to tell a Member of Congress from a Pacific Rim State about the importance of exporting U.S. products and services worldwide, and the Department of Energy has a modest, but successful program that's helping to open markets for U.S. companies in China, India, Southeast Asia, and elsewhere.

Energy efficiency companies tend to be small companies, Mr. Chairman, and they can't reach out to those global markets alone. They just don't have the wherewithal. And the Department of Energy helps them with market studies, some general work. It helps them understand where those markets may be.

Thirdly, I'd just like to mention a program called Energy Analysis and Diagnostic Centers, which have been renamed by the Department of Energy. Small businesses, in particular, around the country are complaining about the burdens that are placed on them by environmental requirements, and I think we're all sympathetic to the burden placed on small businesses by those environmental rules. These Energy Analysis Centers go through small and medium-sized factories and point out ways to save energy, to do pollution prevention, and it's a way to just help them, and then they have to go out and make those investments in technologies happen, but it teaches them where in their own factory they can avoid pollution, where they can save energy. It's a great program, very successful, helping small and medium-sized businesses around the country cut their energy bills and clean up their environment.

Again, in conclusion, I thank you for the chance to testify today, and I just want to leave you with that simple message that energy efficiency is a key environmental solution, and by investing just a few million dollars, we'll be able to save the taxpayers money, as well as clean up the environment in a nonregulatory fashion.

Thank you. I stand ready to work with the subcommittee during this difficult year, and I'm ready to answer any questions you might have.

Mr. NETHERCUTT. Well, I appreciate your testimony, and I know the subcommittee does, too. And you make very good points. I mean, we need to look at small investments that have wide gains, and that's what we're going to try to attempt to do this year, and do our best.

Mr. NEMTZOW. Good. Your State has really been a national leader in this area, as I think you know.

Mr. NETHERCUTT. It has. We have good records out our way——

Mr. NEMTZOW. You do.

Mr. NETHERCUTT [continuing]. And we care about the environment, and we're trying to not equate environmental efficiency with how much money we spend. We're trying to say, how can we get the job done and what it's going to cost. That's why we face this issue. That begs the question of how much do you really need versus how do we compare with other cuts. So I think we're striving to say, how much money is really needed; how much is a good investment? We'll do the best we can.

Mr. NEMTZOW. And I would encourage you to demand upon the Department of Energy and the other agencies—the Department of Interior spends a lot of money on energy with all its facilities——

Mr. NETHERCUTT. Sure.

Mr. NEMTZOW [continuing]. Throughout the country, and demand on them, what are they doing; what are their metrics, and make sure you're getting your money's worth.

Mr. NETHERCUTT. Fair enough. Thank you, sir.

[The statement of Mr. Nemtzow follows:]

TESTIMONY OF
DAVID NEMTZOW
PRESIDENT
THE ALLIANCE TO SAVE ENERGY
BEFORE THE APPROPRIATIONS COMMITTEE
SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES
ON THE FY'97 BUDGET FOR D.O.E. ENERGY EFFICIENCY PROGRAMS

MARCH 7, 1996

Mr. Chairman and Members of the Subcommittee. Thank you for the opportunity to testify before you today in support of the expected Administration request to increase Fiscal Year 1997 spending for the Department of Energy's energy efficiency programs.

My name is David Nemtzow. I am the President of the Alliance to Save Energy, a bi-partisan, non-profit coalition of business, government, environmental, and consumer leaders dedicated to improving the efficiency with which our economy uses energy. The Alliance was founded in 1977 by Senators Charles Percy and Hubert Humphrey; it is currently chaired by Senators Jeff Bingaman and James Jeffords as well as your colleagues, Representatives John Porter and Ed Markey.

Over eighty companies currently belong to the Alliance to Save Energy. If it pleases the Chairman I would like to include for the record a complete list of the Alliance's Board of Directors and Associate members, which includes the nation's leading energy efficiency firms, electric and gas utilities, and other companies committed to cutting their energy bills.

The Alliance has a long history of researching and evaluating federal energy efficiency efforts. We also have a long history of supporting efforts to promote energy efficiency that rely not on mandatory federal regulations, but on partnerships between government and business and between the federal and State governments. I am here today, Mr. Chairman, to thank you for your effective efforts to stave off the kind of massive cuts in the FY'96 appropriations for the Department of Energy's energy-efficiency programs which were outlined by the Science Committee last year in their non-enacted authorization bill. DOE efficiency programs are largely voluntary programs which spur the development of new energy-efficient technology, work with the private sector to deploy that technology, and foster energy efficiency activities in the states. I am also here to say, however, that by making these programs a target for disproportionate budget cuts, the House majority is destroying what should be the basis for a pro-active, free-market-oriented approach to environmental protection.

Energy efficiency is a key solution to atmospheric pollution. Energy production and use accounts for approximately 80 percent of air pollution. Electricity generation alone accounts for 75 percent of sulfur dioxide emissions, 38 percent of nitrogen oxide emissions, and 35 percent of CO2 emissions. The transportation sector accounts for the bulk of CO2 and NOx. More efficient technologies in transportation, building technologies, industrial processes, and electricity generation -- among other activities -- prevent emissions of these hazardous pollutants, which in turn lessen potential levels of acid rain, urban smog, and global warming. The prevention of pollution should be a key strategy in not only making our nation more environmentally healthy, but in reducing the likelihood that inflexible regulation will have to be employed or strengthened to control these emissions in the future.

I think it's worth taking a moment to address the question of global climate change. It is a topic which has been denounced by some in the Republican majority as an illegitimate issue in the 104th Congress. However, a recent survey conducted by Republican pollster Vince Breglio found that 70 percent of Americans view it as a serious problem. While the Alliance may agree that the science of climate change has not reached a level of certainty where it makes sense to implement strict economy-wide controls on carbon dioxide emissions, there is a broad scientific consensus that there is cause for serious concern. Again, voluntary programs which work with the private sector to reduce greenhouse gases should be a hedge against both climate change and demand for strict regulation. In view of the Energy Information Agency estimate that world energy consumption will rise 40 to 50 percent by 2010, energy efficiency initiatives are a relatively inexpensive, "soft path" to a more sustainable climate. These catalytic programs are literally the ounce of prevention worth the regulatory pound of cure for our nation's environmental protection.

In light of the highly-publicized political difficulties the majority has had thus far on environmental issues, I urge that it look again at D.O.E.'s energy efficiency programs. In short, they help maximize the overall progress which our nation makes toward achieving a competitive, high-growth economy while maintaining the kind of environmental quality which we both want for our children.

Though the Administration's FY 1997 budget request has not yet been submitted, we expect that it will include a significant increase for energy efficiency programs over the FY 1996 level arrived at in H.R. 1977 – which was a 28 percent cut over FY 1995. Though such an increase may seem challenging in light of the Subcommittee's falling 602(b) allocation and increased demand from all areas of the Subcommittee's budget, we respectfully urge you to take it as a clear show of urgency on the part of the Administration that these technologies be emphasized – not targeted. As I just stated, the Alliance believes that strong efforts to improve our nation's energy efficiency are not philosophically out of step with the pursuit of a less regulatory environmental protection strategy, or even necessarily antithetical to balancing the budget. In fact, Mr. Chairman, we urge you and your colleagues to analyze and improve federal energy efficiency efforts, making them your own as a consistent pillar of a majority environmental policy.

Mr. Chairman, from your years of commitment and leadership on these issues, this Subcommittee knows well that vigorous D.O.E. energy efficiency programs not only help clean the environment, they enhance national security and save billions of dollars in energy bills for businesses and families. Just as importantly, energy efficiency creates jobs – not just theoretical jobs, but real jobs at good wages, as Alliance Associate companies demonstrate every shift, every week, every payday. Every time a homeowner insulates their home because of a building code or buys new, efficient lighting, an installer or factory worker is making a living. By fighting for these companies, this Subcommittee can help hundreds of other companies nationwide create jobs by using energy more efficiently and by deploying energy efficiency technologies in the U.S. and international marketplace.

I would like to mention in particular a few of D.O.E.'s energy efficiency programs which the Alliance strongly believes are of the highest priority in order to meet our shared goals of economic health, conservation of natural resources, and job creation.

Federal Energy Management. After years of neglect, the Administration has re-committed itself to directly saving energy and taxpayers' money by investing in federal buildings. The bill to heat and cool federally owned and occupied buildings is about $4 billion annually; the Alliance to Save Energy has determined that the federal government could easily cut $1 billion off its own energy bill just by using existing, off-the-shelf, cost-effective measures. Despite previous neglect, FEMP has still made significant progress. From the base year of 1985, energy costs for the federal government in FY 1994 were $2.4 billion less than they would have been without energy-saving programs instituted by FEMP, and these programs are expected to save the government an additional $400 million annually by the year 2000. Additional progress was made in FY 1995, and we hope to have those results soon. We strongly support funding no less than the Administration's request for this effort which is providing ever-accelerating results. In addition we strongly support providing incentive for agency mangers to utilize energy service performance contracting with private firms to speed reductions in federal energy use.

Export Promotion. Last year, the Alliance to Save Energy completed a survey of small to medium sized energy efficiency businesses who told us that the most useful role for the government is to conduct market assessment and identify potential markets abroad. Domestic efficiency firms are looking forward to selling their products and services abroad, but need technical and other support from D.O.E. This is now happening under the aegis of COEECT, the Committee on Energy Efficiency Commerce and Trade, whose missions to Mexico and Portugal last year have resulted in susccessful marketing for U.S. efficiency firms. We appreciate that the International Market Development account was one of the few in the efficiency budget to receive level funding. As COEECT has grown and matured as an effective promotion agent for efficient American products abroad, we urge that it again remain free of substantial budget cuts.

Industrial Process Efficiency. For small to medium sized manufacturing firms using energy efficiently can often mean the difference between investing in new capital and closing their doors. Unfortunately, many of these companies do not have the technical resources to make cost-effective decisions and will miss golden opportunities not only to reduce energy costs, but related pollution prevention opportunities. A key way in which small and medium-sized manufacturers gain information about efficiency improvements which they can make is through D.O.E.'s Energy Analysis and Diagnostic Centers (EADCs). As of last year, EADCs had conducted free energy and environmental assessments for 5,100 businesses which subsequently saved those companies $517 million. This is a program that works.

Home Energy Ratings and Energy Efficient Financing. After the mortgage payment, the single largest contributor to housing affordability is a reduction in utility expenditures. The Energy Policy Act of 1992 wisely recognized that the non-uniformity among home energy labeling programs often confused home buyers and homeowners and had little credibility with mortgage lenders when assessing the value of home energy improvements. The new voluntary home energy rating systems guidelines being developed by D.O.E. and the five-state FHA energy efficient mortgage pilot program will remove many of the existing barriers. These initiatives must be supported financially to create an effective delivery mechanism in a marketplace fraught with nonuniformity, diverse special interests and deal-killing financial and appraisal procedures.

Building and Industrial Research Programs. D.O.E.'s work with the national laboratories and directly with the private sector have yielded technology breakthroughs which have revolutionized industries such as lighting, heating and cooling, appliances, and other areas. This long-term, high-risk research has resulted in billions of dollars in energy savings over the past fifteen years. Prime examples of DOE success stories are the development of high-efficiency windows, electronic lighting ballasts, and super-efficient refrigerator technology. A forthcoming analysis by the American Council for an Energy-Efficient Economy shows that these three successes alone have accounted for $3.5 billion in additional revenue for U.S. manufacturers, energy savings to consumers of an additional $1.5 billion (or 250 trillion Btus), and the prevention of 100 thousand metric tons of sulfur dioxide, 76 thousand metric tons of nitrogen oxides, and 18.5 million metric tons of carbon dioxide. All of these benefits accruing to the American public resulted from a total of $24 million in investment by DOE. We ask you to oppose pending legislation which would vastly curtail the efforts of the national labs, and strongly urge that they be continued and enhanced.

Building Codes and Standards. The Energy Policy Act of 1992 (EPAct), like other laws before it, does not dictate energy efficient building codes to the States and localities, but rather authorizes D.O.E. to provide technical assistance to encourage States to adopt such codes. This work is now underway and has enormous potential, especially in the 36 or so States that have not yet adopted energy efficient codes. The Alliance is very active in the promotion of building codes and we most strongly recommend very strong support for DOE efforts to advocate for adoption and enforcement of building codes and standards. Last year's controversy over appliance efficiency standards almost caused the downfall of these essential efforts -- though they were not the focus of the controversy.

Mr. Chairman, the following programs deserve continued support for the important work they do to achieve greater energy efficiency in the nation:

State Energy Conservation Programs --
Weatherization Assistance Program.
Climate Wise.
Motor Challenge.
Lighting and Appliance Standards.
Integrated Resource Planning.

While the Alliance expects to strongly support the President's recommendations, we do recognize the immense budget pressure which you now face. It might someday be appropriate that the energy conservation budget be transferred to the Energy and Water Subcommittee where it can compete for funds with other energy sources, rather than Indian health programs, National Parks and other unrelated accounts. We also are not here to say that there is no fat in the DOE energy efficiency budget or that these programs cannot be carried out more efficiently. However, there are many areas which could make substantially more progress if given adequate resources.

In summation, the Alliance to Save Energy expects to strongly endorse the Administration's request for energy efficiency spending in Fiscal Year 1997. We respectfully urge that the Subcommittee fully fund the request in order to improve the environment and strengthen our national economy. Consumers and businesses across the nation -- from low-income households to multinational firms such as Honeywell -- are benefiting from D.O.E.'s energy efficiency programs. If the Subcommittee increases funding for these programs -- or at the very least avoids more debilitating cuts -- more Americans will benefit, and benefit sooner, from these programs.

Thank you again, Mr. Chairman, for offering the Alliance to Save Energy the opportunity to testify before you today and for your support in past years for energy efficiency. I welcome any questions that you or the Subcommittee might have.

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

FRANK DERBYSHIRE, UNIVERSITY OF KENTUCKY CENTER FOR APPLIED RESEARCH

Mr. NETHERCUTT. University of Kentucky Center for Applied Research, Dr. Frank Derbyshire. Welcome, sir.

Mr. DERBYSHIRE. I'd like to thank the subcommittee for the opportunity to appear here today and testify on the Department of Energy's fossil energy research and development appropriations for the coal research program. I would also like to say that, after the last two speakers, that we are also concerned with efficiency and the environment, even though I'm talking about coal here.

Specifically, I'm requesting support to examine a concept that could lead to construction of a commercial plant in Kentucky to employ advanced technologies for the production of clean, low-cost electrical power from coal, with the optional co-production of chemicals. I also request support for research and development programs in contingent areas; namely, the disposal and utilization of the solid byproducts from coal combustion and advanced gasifiers, the production of chemicals from coal synthesis gas, and the production of added-value carbon materials from coal. And that can be applied to resolution of environmental problems.

As the subcommittee, I believe, is very familiar with the research and development programs in coal research and relevant issues, I'd like to focus the remainder of my time on the salient aspects of this first topic, which is a new concept to help to advance technologies for coal-fired power generation to commercialization.

And on this subject, I act as a spokesperson for the Kentucky Coal Marketing and Export Council, which is a body that is advisory to the governor of Kentucky and representative of coal producers, utilities, and other interests in the State.

The present situation is that, as we have been hearing, in spite of an investment of about a total of $7.2 billion by government and industry to demonstrate technologies for the clean, efficient use of coal for power generation, commercialization is still far from imminent. The barriers that we see at the moment are the high capital costs associated with any new coal-fired plant; the technical risks associated with the first-of-a-kind plant, and uncertainties that are in our present electric utility industry relating to deregulation and wholesale wheeling.

The net effect of these uncertainties is that the utilities are unwilling to undertake any major new investments that could adversely affect their competitive position. So, instead, the useful life of existing baseload plants is being extended as long as possible, and it has been predicted that there will be no requirement to construct new baseload capacity before the year 2005. And even then, there is absolutely no guarantee that the power producers at that time will be constrained to adopt advanced technologies.

To try and overcome these barriers, to insure the continued use of coal for low-cost power, and to affect, essentially, the transfer of industrial interest from the technology developers, which is what we've seen so far and which is where this money has been spent, to the users, the Kentucky Coal Marketing and Export Council has proposed a potential solution. That concept involves bringing together an industrial consortium to share the risks and to construct and operate the first fully privately-funded commercial baseload plant for advanced coal-fired generation, based upon an appropriate coal gasification technology. And, optionally, this plant will co-produce chemicals as byproducts from the coal synthesis, gas from the gasifier.

The proposed multi-user facility will deliver power and products to consortium members and to other customers. It will look to private investors to bear the burden of investment and to the State and Federal governments to help initiate the venture, and this is really why I'm here today, to lend their resources and expertise, and, ultimately, to look to provide incentives in the form of either tax concessions, guarantees, or other subsidies that will help to reduce the financial risk.

The venture, overall, we estimate will take something like six to eight years, possibly a little longer, the first phase of which is critical and will be a study to answer the questions of whether the technical and economic risks are acceptable in the open market and whether the co-production of chemicals is an asset. The study will also provide cost, market, and other information necessary to develop a business plan and attract investors.

So to start this work, we're asking that the phase 1 study, which is a critical step to determine whether the venture should proceed at all, we're requesting an appropriation of $300,000 in the next Fiscal Year to match equivalent private funds to conduct the first phase. And we think that a study such as this could be effectively coordinated by an experienced DOE contractor, such as Mitretek Systems, who has been evaluating the clean coal technologies, and then working in conjunction with the Kentucky Coal Marketing and Export Council.

Thank you for the opportunity to present those views.

Mr. NETHERCUTT. Thank you for presenting your views. We're delighted to have your testimony. It will be made part of the record, and we're glad to have you here.

Mr. DERBYSHIRE. Thank you.

Mr. NETHERCUTT. Thank you, sir.

[The statement of Mr. Derbyshire follows:]

Testimony on Coal Utilization Research and Development

House Appropriations Subcommittee on Interior and Related Agencies

by

Dr. Frank Derbyshire, Director

University of Kentucky, Center for Applied Energy Research

March 7th, 1996

My testimony is concerned with the Department of Energy's fossil energy research and development appropriations for the coal research program. Specifically, I request the subcommittee to support a one year study that will provide the basis to initiate the formation of an industrial consortium to design and construct a commercial power plant in Kentucky. The plant will employ advanced technologies for the production of clean, low-cost electrical power, with the optional co-production of chemicals from coal synthesis gas. Relatedly, the subcommittee is urged to maintain research and development programs leading to technologies for the disposal and utilization of the solid by-products from coal combustion and advanced gasifiers, and to investigate the production of chemicals from coal synthesis gas. Lastly, I request an expansion of basic research to produce added-value carbon materials from coal, particularly those that are instrumental in the resolution of environmental problems.

Advanced Coal-fired Power Generation

The subcommittee is well aware from past testimony from myself and others of the importance of coal to national prosperity and our future economic development. Coal is our most abundant fossil energy resource, and the source of low cost electrical energy: low-cost power is an important locational factor for attracting new manufacturing industries, for economic development, and for job creation. In 1994, approximately 52% of electrical power was produced from coal. Neither natural gas nor oil can compete in terms of abundance or low cost. The average cost per million Btu paid by utilities in 1994 was $1.36 for coal, versus $2.49 for oil and $2.23 for natural gas. In addition, the real mine price of coal has decreased by over 40% since 1985.

Environmental concerns present the principal constraints to the use of coal. In recognition of this problem, the federal government, through the Department of Energy, has made a considerable investment to demonstrate technologies for the clean use of coal. The advanced technologies that have been developed under DoE sponsorship offer increased efficiency over conventional plants for coal-fired power generation, which translates to still lower cost electricity. At the same time, efficient emission controls mean that there are minimal environmental impacts associated with coal use. The commercialization of advanced technologies would help to stabilize coal production, particularly in the eastern coal-producing states, and provide a spur to the growth of US industry.

The move to bring the new technologies on stream has presently stalled. Considerable investment is required to construct a new facility and, as with any new technology, there is some technical risk associated with a "first-of-a-kind" plant. Start-up is inevitably a learning experience, and there is an indeterminate period before the plant will operate at design performance. Shareholders require a premium on their return to accept this risk. In addition, while the electric utility industry recognizes the potential advantages of advanced power generation technologies, it is currently beset with uncertainties relating to deregulation, and wholesale wheeling. Numerous reported studies have demonstrated that these uncertainties present major barriers to the adoption of advanced technologies. Utilities are essentially unwilling to incur costs that adversely affect their competitive position. Decisions to build new baseload capacity, and the type of technology that will be employed, are being deferred, and the life of existing plants will be extended as long as possible. It seems unlikely that any new baseload capacity will be constructed before 2005 at the earliest. Even when that point arrives, there will still be hesitance to adopt advanced technologies. Industry is unlikely to act alone to take the next steps, and government support is necessary to encourage commercialization and to protect the sizeable investments that government and industry have already made in the clean coal technology program - estimated to be nearly $7.2 billion.

The Commonwealth of Kentucky has a long-established leadership role in the development of appropriate technologies to facilitate and promote the use of coal. Since 1976, the Commonwealth has committed approximately $100 million to research and development, and continues to fund activities at this Center by an appropriation of $3.5 million per year. Oversight of the Commonwealth's coal interests is provided by the Kentucky Coal Marketing and Export Council, a body advisory to the Governor of Kentucky and representing coal producers, utilities, transporters, and the academic and financial communities.

In relation to the problems facing the commercialization of advanced coal-fired power generation technologies, the Council has taken the initiative to act as a catalyst for assembling an industrial consortium to construct and operate a 300 - 400 MW pioneer baseload plant for advanced power generation based upon an appropriate gasification technology with, optionally, the co-production of chemicals. Through collective investment by private industry, the risks are shared, and the proposed Multi-User or Merchant Facility would deliver baseload power and products to the partners in proportion to their ownership interests and needs. The concept will provide a model for similar ventures that could eventually lead to the widespread construction of new plants for advanced coal-fired power generation.

The consortium will look to private industry to bear the burden of investment, and to the state and federal governments, for support to help to initiate the venture, for use of their expertise and resources to help to carry it through, and to provide incentives in the form of guarantees or subsidies that will mitigate the risk and encourage investors. The venture will extend over six to eight years from inception to plant start-up, and will involve five distinct phases, with a decision point at the end of each phase.

Phase I will be a one year study to answer the question of whether the technological and economic risks of the Merchant Facility concept are acceptable, and whether the co-production of chemicals with electric power is worthwhile. This groundwork is essential to affirm the sound basis of the concept and to provide the information necessary to attract industrial partners. The study will involve: economic and technical analyses of competing and potential advanced technologies; estimates of the overall cost and the projected breakdown of costs for subsequent phases; the projected cost differential between new power production and that from existing, older plants; an analysis of the markets for electric power and chemicals; identification of the criteria for plant siting; and the development of a business plan. It is requested that the DoE set aside $300,000 in the next fiscal year to cost-share the study, which could be efficiently co-ordinated by an experienced DoE contractor such as MITRETEK Systems in conjunction with the members of the Kentucky Coal Marketing and Export Council.

If a decision is made to proceed, subsequent phases will involve: the recruitment of participants for investment, and engineering and construction (phase II); a detailed evaluation of the technology, and economics of the selected plant, environmental assessments, and a preliminary engineering design (phase III); a detailed engineering design and costing (phase IV); construction and operation (phase V).

Research and Development in Coal Utilization

In addition to supporting the use of coal for power generation, there are contingent areas of coal utilization where it is in the national interest to maintain R & D capabilities, and develop technologies that address current problems, and open the way to new uses of this resource. The University of Kentucky Center for Applied Energy Research has developed active programs in the management of coal combustion by-products, the conversion of coal to chemicals and fuels, and the development of materials from coal, with considerable cost share by the Commonwealth of Kentucky. We request the subcommittee to appropriate funding that will allow a continuation and, where appropriate, expansion of the DoE's research and development programs in these areas.

Coal Combustion By-Products

The management of the solid by-products from coal combustion, including fly ash, bottom ash and flue gas desulfurization media, represent a substantial burden to both the coal producer and consumer. As a consequence of environmental mandates, the quantities of these materials are increasing. The conversion of many utilities to low-NOx burners has resulted in higher concentrations of carbon in fly ash, diminishing its marketability. A recent study by the American Coal Ash Association found more than 700,000 tons of fly ash (almost 10% of the total fly ash utilized) could not be sold to the cement and concrete market last year because of this problem. A second trend caused by decreased marketability and enhanced disposal costs is an increasing pressure to return by-products to the mine site. Mine back-hauling has increased from a single case in 1992, to become a common part of many coal contracts in Kentucky. The economic and environmental impact of coal field disposal of coal combustion by-products is unknown. We strongly recommend new research to address both of these issues.

At a time when the complexity and costs of handling coal combustion by-products is increasing, the amount of support available for research and development has substantially decreased. Since 1994 the DoE budget for coal combustion by-product research has declined by 23%. We recommend a budget of $2.35 million for coal combustion research for FY 1997, of which $0.80 million should be directed to research on new technologies for the utilization of fly ash impacted by low NOx burner conversion, and new initiatives in the study of the impacts of mine backhauling coal combustion by-products.

Chemicals and Liquid Fuels

The production of fuels from coal gasification synthesis gas has been studied for some years, as has the direct liquefaction of coal, as a strategy to produce transportation fuels, and with the overriding objective of safeguarding the nation's strategic interests. Even though these topics are not currently fashionable, the rationale is more compelling than ever: a recent oil company projection shows that world wide oil production will flatten and begin to decline by 2010. In terms of the national budget, the cost to continue these programs is negligible, and a small price to pay to ensure the existence and advancement of our present knowledge base, and to maintain the ability to lessen dependence on imported petroleum. We request that the DoE funding for indirect and direct liquefaction be restored to 1995 levels to stem the erosion that has already taken place and which has inflicted considerable hardship on these programs. This would ensure that the DoE Alternative Fuels Development Unit for synthesis gas conversion would continue to operate to evaluate catalysts and processes on a scale that is meaningful to industry. In addition, because of its relevance to the viability of the proposed Merchant Facility, the subcommittee is urged to consider an appropriation of $1.0 million for the next fiscal year, as the first year of a three year program to investigate routes for the production of chemicals from coal synthesis gas.

Materials

Finally, although the production of materials from coal does not represent a large volume use of the resource, the high added-value of the products can make significant contributions to the profitability of US industry. For example, as has been demonstrated in Japan, carbon fibers can be produced from coal liquids, some of which can be derived at moderate cost. While the DoE has supported some efforts in this field, there has been insufficient recognition of the important contributions that can be made by research organizations across the nation. Among the investigations at this Center, we have shown that fibers and other forms of carbon materials produced from coal can be excellent adsorbents or catalysts for processes to clean the environment. the removal of sulfur oxides from flue gases with the formation of sulfuric acid, itself a valuable chemical; and the remediation of contaminated groundwaters by the adsorption or breakdown of hazardous pollutants. We recommend that the subcommittee continues to support and expand key endeavors in the synthesis of carbon materials from coal for environmental applications, and request, through the DoE fossil energy program, an appropriation of $500,000 for fiscal year 1997, as the first year of a three year program.

In summary, we request the following appropriations for the 1997 budget:

$0.30 million to cost share the phase I study for a commercial advanced coal-fired power generation plant based upon appropriate gasification technology;

a budget of $2.35 million for coal combustion research for FY 1997, of which $0.80 million should be directed to research on new technologies for the utilization of fly ash impacted by low NOx burner conversion, and new initiatives to study of the impacts of mine backhauling coal combustion by-products;

restoration of the liquefaction programs to 1995 levels, and and additional $1.0 million for the next fiscal year, as the first year of a three year program to investigate routes for the production of chemicals from coal synthesis gas; and

$0.50 million for fiscal year 1997, as the first year of a three year program to expand the existing efforts on the production of materials from coal, and support key endeavors in the synthesis of carbon materials for environmental applications.

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

F. WILLIAM KIRSCH, UNIVERSITY CITY SCIENCE CENTER

Mr. NETHERCUTT. I'm happy to relinquish the Chair to the chairman, the real chairman.

Mr. REGULA [presiding]. Thanks.

Okay, University City Science Center, Dr. Kirsch. Thank you for coming.

Mr. KIRSCH. It's nice to see you again.

Mr. REGULA. The annual event, huh?

Mr. KIRSCH. Yes. And I'd like to thank some of the preceding speakers, as well as this subcommittee, for the program I'd like to talk about, which is the Energy Analysis and diagnostic Center program, also known as the Industrial Assessment Center program. It is a program that serves small and medium-sized manufacturers, and the field work is done by university engineering faculty and students.

I'm the manager of the western regional portion of the program, which functions from Illinois to the West Coast. There is another manager for the eastern portion of the Nation.

Anyway, this subcommittee has been steadfast in its program support, and I, frankly, want to be accountable to report what has happened. My written statement contains the data to document the results, but the real story of accomplishments can be best told from the perspective of the manufacturers it has served, and there are about 5,500 of them served in 43 States. To date, in terms of verifiable statistics, they've achieved an accumulative savings figure of $750 million. That's implemented in energy and operating costs. They have generated an average annual conservation equivalent to 2 million barrels of petroleum. They've achieved and implemented—and I emphasize "implemented"—savings figure of approximately $29 for every dollar of Federal program support, and they have also returned to the Federal Government, through the manufacturers, a total of about $7.25 in taxes for every Federal dollar that has been invested.

We know these statistics are reliable because we require the individuals doing the field work to report implemented, as well as recommended, values, and, in addition, of course, my staff and I annually interview a large number of the manufacturers that have been served and verify the results. And we're sure of their satisfaction with the results they're receiving.

That's why I don't hesitate to say I speak for several thousand small and medium-sized manufacturers that have been served to date, but also for the thousands that remain to be served. But even the benefits I think we have to realize are also more widespread than just the manufacturers because there are approximately a thousand engineering students who have worked on the program and achieved practical experience. They almost never have trouble getting a job, and their job offers are related many times to their EADC experience. And, of course, their own faculty who are guiding the program have their awareness of applied energy results and applied technology that is heightened by their participation in this program.

So, indeed, the benefits, as I say, are numerous and widespread. It's essential to realize, however, that without the EADC program, very little of this would have happened. And we know that from our contacts with the manufacturers, and the result would be, of course, a few thousand small and medium-sized manufacturers, if they were still in business, would be a lot less profitable and a lot less competitive.

Mr. REGULA. Is your budget financed partly by private money?

Mr. KIRSCH. No, it is not. It is—it has, from the beginning, it has been entirely financed by the Federal dollars that have gone into the program.

The manufacturers do spend money, of course, to support our work in the plant, meaning their time in gathering data and working with us and working up the reports——

Mr. REGULA. But your organization——

Mr. KIRSCH. But our organization, we're entirely supported by, for this program, entirely supported by Federal dollars, yes, sir.

Mr. REGULA. Would there be any chance that you could get some matching money from private sources and/or local government?

Mr. KIRSCH. We have not been successful in doing that, to get matching funds of that kind. Now we do require—we do provide a small match from our own corporation. I can't recall the exact percentage, but it's a small match; it's not more than 10 percent.

Mr. REGULA. But if you go in and do this analysis and diagnostic program for a company, do they pay you for your services?

Mr. KIRSCH. No, sir, there is no financial transaction.

Mr. REGULA. It would seem to me it would be beneficial for your clients.

Mr. KIRSCH. It is—it would be beneficial. The problem that one faces there, of course, is that these manufacturers are skeptical before they see what's going to happen. In other words——

Mr. REGULA. How do you get in there?

Mr. KIRSCH. Well——

Mr. REGULA. Do they invite you?

Mr. KIRSCH. We get in by simply knowing that these firms exist and contacting them and offering to do this service, and pointing out that they are under no obligation to implement anything, even when we finish. They can come up with zero, if they choose. But we're very pleased to see that they do implement a lot, and we do feel that the money that they save, the actual dollars measured in real implemented terms, represent incremental earnings, and these incremental earnings are taxable, and that's why we claim the return of approximately a little over $7 for every Federal dollar that has been invested in the program. And that's based on implemented figures, not what was recommended.

Mr. REGULA. Okay.

Mr. KIRSCH. So I realize this is a time of tight budget dollars, but I ask for continued support. The total for the program, by my own estimate—and it's in my prepared statement—by estimate, is going to be about $7.8 million. That's not all for us, I mean for the western portion; that's for the entire Nation.

Mr. REGULA. Okay, well, thank you very much.

Mr. KIRSCH. So I thank the committee for its help over the years, and we've tried to be accountable.

Mr. REGULA. Thank you.

Mr. KIRSCH. Okay.

[The statement of Mr. Kirsch follows:]

U.S. House of Representatives
Committee on Appropriations
Subcommittee on Interior and Related Agencies

March 7, 1996

Testimony Prepared

by

F. William Kirsch, Ph.D.
Vice President, Industrial Technology and Energy Management
University City Science Center, Philadelphia, PA
and
Field Manager, Western Region
Energy Analysis and Diagnostic Center Program
sponsored by
U.S. Department of Energy

This testimony is directed toward the industrial energy conservation (EADC) and waste reduction (IAC) appropriations for the Department of Energy. To support the expected range of the EADC/IAC program, the amount requested for FY97 is, according to my estimate, about $7.8 million.

The Energy Analysis and Diagnostic Center (EADC) program serves small and medium-size manufacturers in 43 states by identifying in their plants specific energy-conserving and cost-saving measures. In addition, EADCs provide practical manufacturing experience for students of engineering and technology who assist faculty members in conducting energy and waste reduction assessments in the plants.

By serving a region equivalent to a radius of 150 miles, these EADCs are able to reach about 84% of the 126,000 eligible manufacturers in 43 states. (There are only about 1600 eligible manufacturers in the 5 other contiguous states).

In coming before this subcommittee again, I have mixed emotions:

- Gratitude for the continuing federal support provided to the nation's small and medium-size manufacturers.

- Appreciation for allowing me to appear once more to request ongoing support.

- A certain amount of pride in reporting the effectiveness of the program and in providing accountability for the federal government's investment in the competitiveness of manufacturers who can survive only if they are competitive but who often lack the capability to improve on their own.

As measures of the EADC program's effectiveness, I offer the following results:

- Total cost savings of $115.2 million/yr implemented by about 5500 manufacturing plants served through 1994.
- Total conservation of 11,700,000 MMBTU/yr implemented by these manufacturers (equivalent to almost 2 million barrels of oil).
- Cumulative cost savings of almost $750 million implemented by manufacturers.

Impressive as those results may seem, they do not adequately represent the effectiveness of the EADCs' efforts. To do that it is necessary to go to some of the individual plants and examine what happened there. When we took that approach, here are some of the effects we found:

- A California maker of injection-molded plastic parts was able to save about $163,000 per year chiefly by using adjustable speed drives on the electric motors that power the plant's hydraulic system (San Francisco State University).
- A dairy in Washington state was shown that it could save nearly $17,800 per year by recovering waste heat from a compressor and changing the operation of the refrigeration systems (Oregon State University).
- An Arizona manufacturer of metal parts experienced a $62,000 per year savings, most of which was due to a better heating system for the anodizing and plating tanks (Arizona State University).
- An Illinois manufacturer of aluminum castings was given two operating improvements that saved about $25,000 per year (Bradley University).
- In Arkansas a producer of treated railroad crossties learned of cost-saving opportunities that totaled about $145,000 per year through improvements in the plant's steam system and in its electricity supply system (University of Arkansas - Little Rock).
- In Oklahoma, steam system improvements were able to save over $366,000 per year in a plant that makes natural and synthetic waxes (Oklahoma State University).

From first-hand experience with these plants I know that few if any of these energy-conserving or cost-saving recommendations would have been identified, analyzed, and implemented without the EADC. Small and medium-size manufacturers seldom have the time to do that work, and they are skeptical of those who offer to help for a fee or a share of the savings. After an EADC has objectively done the initial work, they are willing -- even anxious -- to hire contractors or equipment suppliers. But the EADC is the key ingredient.

One of our management responsibilities is to look for trends in manufacturing and in manufacturers' responsiveness to opportunities for conserving energy and saving money. A common mistake is to assume that energy conservation was a concern of industry 10 or more years ago but not now. Our experience shows that idea is indeed mistaken.

For many years, our manufacturers implemented about 50% of the energy-related cost savings recommended to them. Recently that number appeared to drop to 40%, but that apparent decrease did not tell the whole story. About 25% of the savings recommended, was based upon installing cogeneration or switching energy sources in the plant. Both of these measures are notorious for being rejected as unacceptable financial risks. If those recommendations are excluded from consideration, the implementation rate goes up to 53% from 40%.

One real trend that we have observed is an increase in payback time for rejected opportunities from the 1.5 to 1.8-year range up to 2.2 years. At the same time the payback time for implemented opportunities remains below 1 year. When we asked manufacturers why recommendations were not implemented, the largest amount of rejection was due to unacceptable financial risks, but the next largest reason was not a rejection but a postponement to a future time. It seems reasonable to conclude that non-implementation is closely related to manufacturers' confidence in the economy and is possibly related to their debt.

In summary, the profitability of investing in energy conservation by small and medium-size manufacturers, aided by the federal government's support through the EADCs, is very good. Of course, manufacturers must still have access to the funds to be invested and they must have confidence that other aspects of the business climate will continue to be favorable.

Moreover, when counting benefits of the program, we should not overlook the practical field experience gained by more than 1000 engineering students, the faculty's awareness of applied engineering technology, and the environmental benefits that come from efficient use of energy and other resources.

These results also demonstrate one means to improve the future competitiveness of the nation's small and medium-size manufacturers. Given practical and specific opportunities to lower costs without sacrificing output or quality, manufacturers as a group will take many of the actions needed to achieve the gains. When the federal government strengthens manufacturers' confidence by providing the information effectively, the results can be highly beneficial to the manufacturers, to the government, and to the nation as a whole.

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

CARL R. BOZZUTO, ABB COMBUSTION ENGINEERING

Mr. REGULA. ABB, Mr. Carl Bozzuto.

Mr. BOZZUTO. Good afternoon.

Mr. REGULA. Yes. Thanks for coming.

Mr. BOZZUTO. Thank you, sir. My name is Carl Bozzuto. I'm vice president of technology for ABB Combustion Engineering. And I'd like to thank the committee for the opportunity to share with you some views that ABB has on the Department of Energy's projects that we're involved in, and I'd also like to thank the chairman for his past support in hearing ABB and helping us with some of these programs.

ABB is a major engineering company in the United States, employing 25,000 people in 50 manufacturing sites and over 300 sales and service centers throughout the United States.

Mr. REGULA. You offer engineering services?

Mr. BOZZUTO. We offer equipment, services, plant support, anything and everything that's involved with energy.

Mr. REGULA. In the area of combustion?

Mr. BOZZUTO. Combustion, steam turbines, gas turbines, transmission and distribution——

Mr. REGULA. You don't manufacture any of this?

Mr. BOZZUTO. We manufacture all of it.

Mr. REGULA. Oh, you manufacture——

Mr. BOZZUTO. We manufacture in the United States.

Mr. REGULA. And engineer, and the whole thing?

Mr. BOZZUTO. And construct——

Mr. REGULA. Do you go overseas?

Mr. BOZZUTO. Yes, sir, we export from the United States, and also in certain areas where we are required to, we manufacture overseas.

Mr. REGULA. Okay.

Mr. BOZZUTO. ABB has worked closely with the Department of Energy since its inception on a number of energy programs, principally with the Office of Fossil Energy and also with Energy and Renewables and the Office of Nuclear Energy. We've worked with the Department on these technologies because we view the needs of our customers and their future requirements as being important to this Nation.

Mr. REGULA. In doing so, you put in some of your money, along with what we use?

Mr. BOZZUTO. That's correct.

Mr. REGULA. So the Energy Department contracts with you——

Mr. BOZZUTO. That's right.

Mr. REGULA [continuing]. For this program?

Mr. BOZZUTO. And, in fact, we have been partners in six of the clean coal technology programs, and in those programs we've cost-shared up to a level of 70 percent. Four of these programs have been successfully completed. Two of these programs are scheduled completion around the year 2000.

In particular, one of our more important programs has been the low emissions boiler system. This program is designed to incorporate the latest technology in environmental controls, as well as to advance technology in the area of energy efficiency. We are employing a new binary cycle called clean cycle, which we believe will improve plant efficiency by 25 percent. This will lead to a reduction in all of the pollutants, a reduction in the cost of electricity, and a reduction in CO_2. And energy efficiency is right now one of the only cost-effective ways to reduce CO_2. Commercial export of this technology looks very promising, particularly in areas in the world where very little environmental protection is occurring today.

The performance of the low emissions boiler system will be similar to more advanced technologies, such as integrated gasification and pressurized fluidized combustion. Phases 2 and 3 of this four-phase project began in October 1994 and are scheduled for completion in March of 1997. Phase 4, which involves construction of a proof-of-concept plant, will start upon award by DOE.

ABB is currently cost-sharing 25 percent in the design phase and will be cost-sharing a minimum of 50 percent in the proof-of-concept phase. ABB would request that the committee provide the necessary funding for the completion of the current phases and the start of phase 4 within Fiscal Year 1997.

Mr. REGULA. About a half minute left. Summarize, please.

Mr. BOZZUTO. Okay. As was mentioned by the prior speakers, government funding provided by the Department of Energy for these very expensive kinds of programs is critical to overcome the huge financial resources needed by utilities in the power industry to put a new technology on the market. As you know, this amounts to several hundred million dollars and really, without the DOE support, there just isn't any way these technologies will go ahead.

And so, with that, we'd like to ask for your continued support. ABB stands ready to work with the subcommittee as needed to get these programs going.

Thank you, Mr. Chairman.

Mr. REGULA. Okay, thank you.

[The statement of Mr. Bozzuto follows:]

TESTIMONY OF
MR. CARL R. BOZZUTO
VICE PRESIDENT OF TECHNOLOGY
ABB COMBUSTION ENGINEERING

BEFORE THE HOUSE APPROPRIATIONS
SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES

MARCH 7, 1996

Thank you for allowing me the opportunity to share with you ABB's views on the Department of Energy's Low-Emission Boiler Systems (LEBS) Project, High Performance Power Systems (HIPPS) Project and Clean Coal Technology Project. I ask that my testimony be submitted for the record.

ABB Inc. is a major US electrical engineering company employing 25,000 people at 50 manufacturing facilities and 300 sales and service centers throughout the United States.

ABB has worked closely with the Department of Energy on a number of technology development pursuits, principally with the Office of Fossil Energy, the Office of Energy Efficiency and Renewable Energy, and the Office of Nuclear Energy. All of these technology pursuits were based on our view of our customers' future requirements and our commitment to developing technologies that will preserve the quality of life for the future generations in the U.S.

Recently, ABB has partnered with the Department of Energy on six of the Department's 45 Clean Coal Technology projects, on a Low-Emission advanced pulverized coal Boiler System for industrial and utility use, called LEBS, and we are part of a team on the HIPPS project. ABB believes the nation would derive significant benefit from the completion of these projects and urges congressional support for their continuation.

LEBS will be used to provide new electric generating capacity or replace old steam plants with coal power generation with dramatically reduced emissions and improved efficiency. Components of LEBS can be retrofitted into coal-fired plants in ozone non-attainment areas and in response to the Clean Air Act's Acid Rain title (Title IV). The innovative design for this pulverized coal-fired boiler system will provide a quantum leap forward in technology advancement. The design incorporates a new thermodynamic cycle (Kalina cycle) as well as emission controls from the outset. Incorporating the Kalina cycle and low-emission technology into the design will increase power plant efficiencies 20 to 25 percent over current technology, thereby reducing CO2 emissions, waste products, and water usage. In addition, air emissions will be reduced to less than one-sixth of the Phase I Acid Rain requirements for NOx, and SOx, and one-third for particulate. These objectives will be achieved with a decrease in the cost of electricity to the consumer.

Commercial export of this cost-effective technology looks very promising for Asia, Eastern Europe and the Pacific rim where little, if any, environmental safeguards are currently taken.

Performance of LEBS will be similar to that of more "futuristic" technologies such as Integrated Gasification Combined Cycle (IGCC) and Pressurized Fluidized Bed Combustion (PFBC). Because LEBS emphasizes improvements in widely accepted technologies, ABB anticipates that for the near future LEBS technology will be the technology of choice by our customers.

Phases II and III of this four Phase project commenced in October, 1994 and are scheduled to be completed in March, 1997. Phase IV, which is the Proof-of-Concept (POC) Phase, will start upon award by DOE. ABB is currently cost sharing 25% of the project cost and will be cost sharing a minimum of 50% for the POC. ABB would request that the committee provide the necessary funding for the completion of Phase III and the start of Phase IV within FY97.

Another project on which ABB, as a team member, and the Office of Fossil Energy jointly are working is a High Performance Power System (HIPPS) focusing on improved power plant efficiency (47% minimum) of coal-fired plants. This combined cycle system, while directed principally for coal use, will be able to use any kind of fuel, dirty or clean, and still significantly reduce CO_2, SOx, NOx and particulates over conventional coal-fired plants. Furthermore, due to its high efficiency, less fuel is used, resulting in less waste (ash). This project is not a near term technology like LEBS, but does promise in the future a significant increase in efficiency over existing power plants.

The Department of Energy's Clean Coal Technology Program has been a major success. The technologies which ABB and other companies are developing will enable the United States and other countries to use their coal resources more cleanly and efficiently and at competitive costs. In fact, these projects reduce emissions to much less than that required by the 1990 Clean Air Amendments In addition, many have significant export potential, as well as domestic application. In half of the projects, ABB and our team members have paid more than 70% of the cost of the projects. We have good reason to believe that our advanced technology projects are currently the only ones that will be cost and environmentally competitive with natural gas fired combined cycles.

Four of the Clean Coal Technology projects ABB has been involved in have been successfully completed, and the remaining two, which are more sophisticated technologies, will be completed shortly after the year 2000.

The government funding provided by DOE's CCT Program and for the LEBS and HIPPS projects are critical to overcome the huge financial hurdles associated with demonstrating major, new, advanced technologies. The deregulation of the utility industry, coupled with the globilization of competition has resulted in a market environment where the key driving factors are price and risk adversity. In order the keep pace, ABB's businesses spend $50 million annually on energy-related R&D in the US. As you know, many of the advanced low emission and high efficiency systems projects require hundreds of millions of dollars to demonstrate and commercialize. In most cases this would not be possible without government support.

On the smaller scale, government R&D support is necessary to mitigate the risk associated with breakthrough technologies, especially given the market adversity to risk. A key example of this is the Low-Emission Boiler Systems project which promises quantum steps forward in minimizing emissions and improving efficiencies of power plants with pulverized coal boilers. Government support combined with strong industry support speeds the development time and allows higher risk approaches with substantial benefits to the environment and to the economy.

ABB urges the support of the Subcommittee for continued funding of the DOE's LEBS project, allowing for the completion of Phase III and the start of Phase IV, HIPPS and Clean Coal Technology projects.

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

SY A. ALI, ALLISON ENGINE COMPANY

Mr. REGULA. Allison Engine, Dr. Ali.

Mr. ALI. Your committee has heard about an energy efficient cleaner environment and better return on government investment. My testimony will address those issues and provide a positive response to those issues.

Mr. REGULA. Summarize, please, in about five minutes.

Mr. ALI. Yes, sir. My name is Sy Ali. I'm director of the advanced industrial programs at Allison Engine Company in Indianapolis. We produce gas turbine for power generation, co-generation, military engines, and commercial aircraft engines. I appear before this committee to urge continued funding of the advanced turbine systems program, as outlined in the February 1994 report to Congress.

The ATS program will enable the U.S. to meet its electric power needs at lower cost using high-performance and environmentally-superior power generation and co-generation alternatives. The ATS program is a true government-industry cost-share partnership. The critical advanced technology development through this program will lead to societal benefits of reduced electric power costs and cleaner environment.

The national and annual expenditures for electricity in 1995 was $208 billion. The program also boosts advanced research on gas turbine technology and materials, development at 70 universities and national laboratories. Industry, of necessity, concentrates its resources on near-term projects due to competitive pressures of the marketplace. Industry is unable to invest 100 percent of the resource requirement in long-term research and development. The ATS partnership, the industry investment in the ATS partnership is equal to or higher than the government's share for the remaining phases of the program.

Two manufacturers are participating in the advanced industrial turbine development. The Allison ATS is driven by high-performance, reliable, environmentally-superior, low-cost and simple configuration requirements.

Foreign governments have accelerated their support of gas turbine advanced technology development. The Japanese government subsidizes advanced technology up to 7 percent of their sales for manufacturers. In contrast, the total U.S. investment in R&D is less than 2 percent.

Mr. REGULA. When would you anticipate this would go commercial?

Mr. ALI. We're looking for the year 2000 to complete our full-scale demonstration. So shortly after that. That is a pre-commercial testing. After that will be commercial availability.

Mr. REGULA. And this would allow producing more kilowatts with less gas; is that correct?

Mr. ALI. Higher efficiency, yes.

Mr. REGULA. And then would the emissions also be reduced? Would you burn more of the btu's in the gas in effect?

Mr. ALI. Greenhouse gases would be reduced significantly so will the oxides of nitrogen.

Mr. REGULA. Would this technology lend itself to small units?

Mr. ALI. You're ahead of my testimony. That's the very area of our interest, in the smaller gas turbines.

Mr. REGULA. So a packaged plant——

Mr. ALI. That's correct.

Mr. REGULA [continuing]. To a company based on this technology; correct?

Mr. ALI. Yes, Mr. Chairman, to smaller companies, the industries for the future companies, and there are seven industries represented in there.

Mr. REGULA. So the utility industry wouldn't be terribly enthused about this?

Mr. ALI. The utility industry would also benefit through the distributed generation package approach of these industrial, smaller gas turbines compared to the large.

Mr. REGULA. In other words, if they had surplus power generated by the package plant, it could be wheeled out through the utility to another customer; is that what you're saying?

Mr. ALI. Or they could put these units near their substations, for example.

Mr. REGULA. Yes.

Mr. ALI. You don't need the infrastructure of transmission lines——

Mr. REGULA. Doing that for peak periods?

Mr. ALI [continuing]. Or baseloads, depending on their applications.

Mr. REGULA. So they're supportive of this development?

Mr. ALI. Yes, Mr. Chairman. As a matter of fact, the program we have undertaken, we do have one utility hosting the demonstration, and the Electric Power Research Institute is a participant in this program with us.

Mr. REGULA. Okay, well, I've taken your time. So you'll have to summarize here pretty quick.

Mr. ALI. Yes, sir. The exciting and promising opportunity for advanced gas turbines also includes the combined operation with fuel cells to provide a very high-efficiency system. I know that this subcommittee has endorsed and appropriated funds for the development of fuel cells. The ATS turbines, coupled with fuel cells in a synergistic mode, can provide an impressive overall efficiency exceeding 75 percent.

Mr. REGULA. How do you do that?

Mr. ALI. Using the input of one system as output to the other system. We use, for example, the output from the fuel cell as input to gas turbine, thereby not burning as much fuel. And the exhaust from the gas turbine could be used to improve the input to the fuel cell. It's a real synergistic approach.

Approximately 140,000 megawatts of new electric power will be added over the next 10 years. This represents a net potential export opportunity of $200 billion. When you add the U.S. to the worldwide power generation addition, it's estimated to be 450,000 megawatts.

The taxpayers will benefit directly from lower national electric bills by approximately $21 billion. Major reductions in pollutant emissions, including greenhouse gases, savings of up to $2.8 billion by eliminating the need for additional electric power because of the higher efficiency of the system with production just in the gas turbine industry of primary jobs of 60,000 and supporting jobs exceeding 600,000.

Allison Engine Company, for example, uses suppliers in 31 States to support the activities we have. It's a major opportunity to preserve and expand the current U.S. net exports of $4 billion, serving the societal and energy needs of the U.S. and the world for the U.S. leadership in quality and potential price reduction of U.S. manufactured products by 3 to 5 percent due to lower cost of electric energy, resulting in improved comparative position in global markets, which in turn would provide increased net export in U.S. jobs. I submit that the potential payoff on the government's investment for the ATS partnership would equal to several times the initial investment.

To accomplish these goals, Allison strongly recommends that this committee appropriate $35 million for the Fiscal Year 1997 for the industrial advanced turbine systems program within the Department of Energy.

Mr. REGULA. Thank you.

Mr. ALI. Thank you very much, Mr. Chairman.

Mr. REGULA. I have other questions I could ask you, but we just don't have time.

[The statement of Mr. Ali follows:]

Allison

Allison Engine Company P.O Box 420 Indianapolis, Indiana 46206-0420

Dr. Sy A. Ali
Director, Advanced Industrial Programs
Allison Engine Company

EXECUTIVE SUMMARY: Mr. Chairman, members of the Committee, my name is Sy Ali. I am Director, Advanced Industrial Programs at Allison Engine Company (Allison) in Indianapolis, Indiana.. Allison is in the business of manufacturing and marketing gas turbines for power generation, cogeneration, and military and commercial aircraft engines.

I appear before this Committee to **urge continued funding of the Advanced Turbine Systems (ATS) program,** as outlined in the February 1994 "Report to Congress: Comprehensive Plan for Advanced Turbine Systems," DOE/FE-0279-1. **The ATS program will enable the U.S. to meet its electric power needs at lower costs, using high performance and environmentally superior, power generation and cogeneration alternatives.**

The ATS program is a true government/industry cost-shared partnership. The critical advanced technology development through this program will lead to societal benefits of reduced electric power cost and cleaner environment. **The national annual expenditures for electricity in 1995 were $208 billion. The program also boosts advanced research** on gas turbine technology and materials development **at 70 universities and national laboratories.**

Industry of necessity concentrates its resources on near term (<5 years) projects due to the competitive pressures of the marketplace. Industry is unable to invest 100% of the resource requirements in long term research and development. In the ATS partnership program, the industry investment is approximately equal to the government share for the remaining phases of the program. Two manufacturers are participating in advanced industrial turbine development.. The Allison ATS is driven by high performance, reliable, environmentally superior, low cost, and simple configuration requirements. Allison will also incorporate the advanced technology from its military and commercial aircraft engines.

Foreign governments have accelerated their support of gas turbine advanced technology development. The Japanese government subsidizes advanced technology at its turbine manufacturers **up to 7 percent** of their sales. **In contrast, the total U.S. investment** in research and development **is < 2%, the lowest among the industrialized countries.** Without the government and industry cost sharing of the ATS program, the Japanese and European manufacturers would take the lead away from the U.S. The most recent **net exports of U.S. gas turbines were over $4 billion.**

OFFSET
CAMERA COPY

AEROSPACE GROUP

The visionary approach taken by the U.S. Department of Energy with the ATS partnership should help promote the technological leadership of the U.S. gas turbine industry. **The U.S. Congress is urged to continue to sponsor and guide the ATS initiative.**

NATIONAL BENEFITS: Approximately 140,000 MW of new electric power will be added in the U.S. over the next 10 years. The worldwide power generation additions are estimated at 450,000 MW. This represents **a potential net export opportunity of $200 billion.**

The U.S. taxpayers will benefit directly from:

- **Lower national electric bills by approximately $21 billion** due to more efficient and cleaner advanced power systems.
- **Major reductions in** pollutants emission, including **greenhouse gases.**
- **Savings of up to $2.8 billion by** eliminating the need for additional electric power by 2015 due to higher efficiency systems.
- **Protection of** 60,000 **primary and** up to 600,000 **supporting jobs** in the U.S.
- A major opportunity to **preserve and expand the current U.S. net exports** of $4 billion.
- Serving the societal and energy needs of the U.S. and the world through the **U.S. leadership in quality.** Potential **price reduction of U.S. manufactured products** by 3 - 5% due to lower cost of electric energy, resulting in **improved competitive position in global markets, increased net export,** which in turn increases **U.S. jobs.**
- The potential **pay off on government's investment** through the ATS partnership, equal to **several times the initial investment** by the government.

RECOMMENDATION: To accomplish these goals, it is strongly **recommended that this Committee appropriate $35 million in FY `97 for the Industrial Advanced Turbine Systems** program within the Department of Energy.

Allison

Allison Engine Company PO Box 420 Indianapolis, Indiana 46206-0420

Dr. Sy A. Ali
Director, Advanced Industrial Programs
Allison Engine Company

ABSTRACT: Mr. Chairman, members of the House Interior and Related Agencies Subcommittee on Appropriations, my name is Sy Ali. I am Director, Advanced Industrial Programs at Allison Engine Company (Allison) in Indianapolis, Indiana. Allison is in the gas turbine engine business for industrial power generation and cogeneration, as well as for military and commercial aircraft engines. At Allison we design, develop, manufacture, market and provide after sales support of gas turbines. I am appearing before this Committee in support of the Department of Energy's (DOE) energy programs, particularly the industrial advanced gas turbine systems.

I strongly urge this Committee to continue to fund the Advanced Turbine Systems (ATS) program, as outlined in the February 1994 "Report to Congress: Comprehensive Plan for Advanced Turbine Systems", DOE/FE-0279-1. The average annual per capita electricity costs in the U.S. were $840 (1994 dollars). The national annual expenditures for electricity in 1995 were $208 billion. The ATS program will enable the U.S. to meet its electric power needs at lower costs, using high performance, environmentally clean, power generation alternatives.

The ATS program represents a viable government and industry partnership approach, which enhances and sustains the global leadership position of the U.S. gas turbine industry, improves U.S. net exports, and protects jobs. The U.S. Congress is urged to continue to sponsor and guide this initiative.

The ATS program offers these broader **societal benefits**:

- **Reduced** electric power **cost potential of up to $21 billion nationally, and cleaner environment**;

- **Improved U.S. economy,** through **exports of competitively priced U.S.** manufactured **products**, more **jobs,** increased use of domestic fuels, and **reduced imports** of oil;

- **Attractive power generation option** with efficient, clean, cost effective, and fuel flexible power generation and cogeneration alternatives.

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

MICHAEL THOMPSON, WHIRLPOOL CORPORATION

Mr. REGULA. Whirlpool.

Mr. THOMPSON. Good afternoon, Congressman Regula. I'm Mike Thompson, director of government relations for Whirlpool Corporation, based in St. Joe, Michigan. Today I'm pleased to present testimony in support of DOE's Fiscal Year 1997 appliance standards program, and we urge this subcommittee to grant the money needed to finish the program that's been started and then re-evaluate whether or not it's necessary after the current round of rulemaking is completed.

By way of background, you may know that Whirlpool is a global manufacturer of major home appliances. We're in approximately 140 countries around the world, and we have manufacturing facilities in 12 different countries, nationwide distribution here.

Because of our global perspective on appliance energy standards, we feel that the United States has led much of the world in producing significant benefits from the program that we have here. Since its inception, this program has resulted in significant energy cost savings for consumers. It's allowed utilities to better manage their loads. It's improved the trend toward better air quality. It's resulted in a reduction in the rate of depletion of our very finite natural resources, and also it's controlled the entry of foreign products that may not be as energy efficient or as high quality as some of the products we're producing. And, also, it's reduced the rate of dependence on foreign energy sources.

I'd like to say—and you may be aware—that Whirlpool opposes the efforts of our trade association, the Association of Home Appliance Manufacturers, and that of NEMA to defund this valuable program and impose killing restrictions in the form of moratoriums on responsibilities of DOE to finish the rulemaking that is underway and publish new and proposed energy efficiency rules. Our opposition is rooted in the fact that there are significant opportunities, we feel, for additional energy savings in at least two product categories.

One of them, most notably, is in the DOE clothes washer consideration, where there is an opportunity to reduce the rate energy and water consumption in those products by 50 to 70 percent.

Mr. REGULA. That would be the side-loader?

Mr. THOMPSON. Not necessarily, sir.

Mr. REGULA. No?

Mr. THOMPSON. Not necessarily. There's lots of ways to get there is what we're saying.

Because of very clear signals that DOE published in 1991 with the publication of their final rule on clothes washers and the progress made into 1995, and because of our concern to serve the consumer, we have made a good faith effort and substantial investments to move forward with these anticipated appliance energy efficiency levels. This is an investment we have willingly supported, since we strongly feel that the long-term national interests and the benefits to consumers far outweigh the initial cost.

Our trade association has stated that the level of clothes washer efficiency which DOE is evaluating will result in an elimination of a whole class of these products. AHAM further alleges that the utility—in other words, the features and the usefulness of the products—will be diminished. It's just not so. There will be no elimination of product classes with the promulgation of the anticipated new DOE clothes washer rules. In addition, the washing performance, which is something that's very near and dear to us, of these products will be improved over today's models.

In the nine years since NAECA passage, we are unaware of a single instance in any appliance category where an entire class of products was eliminated and there was a loss of product features because of DOE——

Mr. REGULA. You have about one minute.

Mr. THOMPSON [continuing]. Appliance standards. Okay.

What I'd like to say is that in 1987 all of us as an industry got together; we agreed to the rules of the game under NAECA, and we got sufficient lead times for new appliance standards implementation. We got pre-emption from State standards, and changing the rules of the game at midstream we believe is grossly unfair.

I guess I'd like to summarize by saying that I heard Congressman Nethercutt a little earlier today saying we're looking at small investments with wide gains. I think this is one of them. In fact, it is one of them. DOE really needs only a few million dollars to complete some of these programs. We urge you to go ahead with it. We urge you to allocate the money. We urge you to keep the riders off in the form of moratoriums.

Mr. REGULA. Thank you.

[The statement of Mr. Thompson follows:]

WHIRLPOOL CORPORATION TESTIMONY TO HOUSE APPROPRIATIONS SUBCOMMITTEE ON INTERIOR

Presented by Mike Thompson, Director, Government Relations
March 7, 1996

Whirlpool Corporation is pleased to present testimony in support of DOE's FY'97 appliance standards funding, and urge this Subcommittee to grant the money needed to finish what they started --- then evaluate whether future funding is necessary.

Whirlpool Corporation is a full line manufacturer of major home appliances with national distribution. We are also a global manufacturer with plants and facilities in 12 countries and sales to 140 countries.

Because of our global perspective, we are aware that the U.S. has led much of the world in producing significant benefits. Since its inception this program has resulted in

1. significant energy cost savings to consumers,
2. increased ability of utilities to manage their loads better,
3. improved trend toward better air quality and its intended benefits,
4. a reduction in the rate of depletion of finite natural fuel resources,
5. controlled entry of poor quality inefficient foreign appliances, and

6. generally reduced the rate of dependence on foreign energy sources.

Whirlpool Corporation opposes the efforts of our trade association (the Association of Home Appliance Manufacturers [AHAM] and that of the National Electrical Manufacturers Association [NEMA]) to defund this valuable program and impose killing restrictions (moratoriums) on the responsibilities of DOE to finish the rulemaking that is underway, and publish proposed and new appliance energy efficiency rules. Our opposition is rooted in the fact that there are significant opportunities for additional energy and water savings in at least two product categories.

Those savings are most notable in DOE clothes washer considerations that could result in a reduction of energy and water consumption for these products of 50%-70% beginning late this decade.

Because of very clear signals that DOE published in 1991 --- and the progress made into 1995, and, because of our concern to serve the consumer, we have made the good faith efforts and substantial investments to move forward with these anticipated appliance energy efficiency levels. This is an investment we have willingly supported since we strongly feel that the long term national interests and the benefits to consumers far outweigh the initial costs.

Our trade association has stated that the level of clothes washer efficiency which DOE is evaluating will result in an elimination of a whole class of these products. AHAM further alleges that the utility (features / usefulness) of these products will be diminished. It's just not so! There will be no elimination of product classes with the promulgation of the anticipated new DOE clothes washer rules. In addition, the washing performance and features of these new high efficiency machines will improve over today's models. In the nine years since NAECA's passage, we are unaware of a single instance in any appliance category where an entire class of products was eliminated, or there was a loss of product features, because of a DOE appliance standard.

I would like to make the point that Americans put much higher priority on first cost rather than life cycle cost. In other words energy efficiency does not sell. Our experience is that the FTC's EnergyGuide label is rarely discussed on the sales floor, and energy efficiency is generally well down on the consumer's purchasing priorities even when the paybacks are attractive.

As an industrial consumer, we have the following example to relate. We are one of the first 22 companies to sign-up for the EPA's "Green Lights" program. We have saved hundreds of thousands of dollars which was due in part to our conversion from magnetic to electronic lamp ballasts. It strikes us that we might have saved even more money if standards had been in place to eliminate dinosaur technologies and require electronic lamp ballasts in all our new or replacement installations. One can't also help but reflect that consumers nationwide would be experiencing significant energy savings from new clothes washer standards if it had not been for the obstructionist tactics of companies who don't have the vision or foresight to plan.

Finally, we emphasize that the National Appliance Energy Conservation Act (NAECA) of 1987 was fully supported by AHAM in the late 1980's. As manufacturers, we asked for and got sufficient lead times between new appliance standards rules, preemption of state appliance standards rules and plenty of "checks and balances" with respect to economic justification. It is only now that political circumstances have driven our trade association and NEMA to stop DOE's current round of rulemaking in midstream by alleging that DOE's rulemaking process is "broke" and in need of regulatory and legislative "fixes". This is a cop-out by those who have fallen behind.

We contend that if AHAM and NEMA are successful in their lobbying efforts, they will significantly delay or even kill existing rulemakings that have substantial ongoing benefits for our nation. Potential negative effects of AHAM / NEMA lobbying efforts could be to

1. create conditions for backsliding of appliance energy efficiency gains already achieved,
2. increase the difficulty for stretched utilities to manage their electrical loads,
3. accelerate depletion of natural resources,
4. act as a disincentive for responsible companies to continue efforts to innovate and introduce high efficiency, cost effective appliances,

5. reward companies who have made only modest or no investments in high efficiency appliances, and

6. most significantly, deny consumers significant energy and water savings of new and known appliance design technologies.

In summary, DOE needs only a few million dollars to complete the current round of rulemaking procedures, then let's evaluate whether future funding is necessary. A pittance when compared to the benefits that will accrue to U.S. consumers.

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

MAXINE SAVITZ, ALLIED SIGNAL INC.

Mr. REGULA. Allied Signal, Maxine Savitz.

Mr. YATES. Well, it's a pleasure seeing you again.

Ms. SAVITZ. It's nice seeing you again.

Congressman Regula, Congressman Yates, I'm pleased to be here again and to——

Mr. YATES. You look very well.

Ms. SAVITZ. Thank you.

Mr. YATES. As a matter of fact, you look better than you did when you worked for the government. [Laughter.]

Ms. SAVITZ. It's nice to be in California. We have sunny weather, and also making things, too, which I'm going to tell you about.

I provided a formal statement which I'd like to be included in the record, but I'm just giving you——

Mr. REGULA. Without objection.

Ms. SAVITZ [continuing]. A brief oral one to really talk to you about some of the successes of the collaborative efforts between industry, government, and the national labs that have resulted in significant advances in implementing some silicon nitride materials and parts.

And the members of this subcommittee, under your leadership, Congressman Regula, and formerly under Congressman Yates, have been really staunch supporters of energy efficiency, and we really appreciate and you deserve a lot of thanks for that.

Mr. YATES. Until this year.

Ms. SAVITZ. Well, keep pushing. And I realize that in this year that it's a time of reduced government spending and decisions have been more difficult, but one important point needs to be made, at least from Allied Signal's point of view, is that we've been investing in the development of ceramic components concurrent with the investment made by—recommended by you people and the Department of Energy.

Over the past two years, Allied Signal has invested over $30 million in development of ceramic technology and manufacturing processes to keep pace with international competition. So while we're asking for a modest level of government funding, we continue to spend our own resources in ceramics.

What I particularly wanted to do was show you some of the successes that we've had and that we've been manufacturing in our facility in Torrence, California, that have been sort of spinoffs, and these are some things called ring rotors, which are on auxiliary power units that are actually flying on the new 777 and on Airbus, and they're used in the pump for the auxiliary power unit. And that starts the airplane's main engines, and it also, when you're on the ground, provides you environmental control.

We've been manufacturing these for about two years, and the costs have gone down a factor of 10. None have been returned because of poor quality. All have been very good quality. It was really spinoffs from the knowledge that we gained in ceramic design and manufacturing. This was——

Mr. REGULA. Does it wear as well as metal or better?

Ms. SAVITZ. It wears better than metal. The metal causes slow starts, and, in fact, it leads me into my next product that is now going on to Citation and Lear jets, and that's for the main shaft engine. These are called seal runners. And what's happening, the metal ring gets destroyed by the carbon oil seal after 700 hours. These will last for over 2,000 hours. And as a result of the ceramic engineers in Phoenix and ourselves in Torrence having had the experience with the DOE programs, we're able to design that and deliver it within 20 days and then in four months a decision was made to go to production. We will be starting production this month.

One under development under the DOE transportation program are these little nozzles, all made out of silicon nitride, which will go ultimately on the 757, 767 plane in about two years. We need two more years of funding to finish the certification and about $4.5 million in 1997 for both the engine part and the manufacturing part. And it's providing the technology base for the hybrid program and also for the industrial program.

Mr. REGULA. Would that technology information be available to any company that might want to produce these parts?

Ms. SAVITZ. Well, we actually do the production, and we are working on parts not only for our own self, but for Allison and their hybrid program, for Teledyne and theirs. And here's a part we're making for Solar Gas Turbine for their industrial program that will start 4,000 hours of testing in the fall. So we will make these. It's all the same material. So these technology base materials, one leads into the other. You can bang it on—I don't want you to bang it on the table; you may make a dent in the table, but they're very hard and they provide higher efficiency, better wear, and have just been very successful.

Cost is the barrier. So part of the DOE's program is to start making more of them every month, so that we can bring the cost down.

Mr. REGULA. Will other companies make these, other than——

Ms. SAVITZ. Allied Signal?

Mr. REGULA [continuing]. Allied Signal?

Ms. SAVITZ. The Japanese are our main competitors. Kyocera and NGK are currently the only other companies who are making these parts.

Mr. REGULA. So their technological development is probably on a par with ours?

Ms. SAVITZ. Yes, three years ago, I would have said theirs is ahead of ours, but our material development has caught up with them. They've had some more manufacturing experience, but with these new—for the automotive-type gas turbines, we really have become comparable. So it's——

Mr. REGULA. Okay.

Ms. SAVITZ. We appreciate your support and are pleased to see it in real products, and also look for future ones.

Mr. REGULA. We've talked about ceramics so much over the years.

Mr. YATES. Oh, yes, and we're making progress.

Mr. REGULA. We're making real progress.

Ms. SAVITZ. Yes, yes.

Mr. YATES. Are we ahead of the Japanese?

Ms. SAVITZ. Well, now our material properties are actually better than the Japanese, as they've been tested. They have—manufacturing for sort of turbine-type parts, we're equivalent, and our aim is to be ahead of them.

Mr. REGULA. Our committee will suspend while we vote.

[The statement of Ms. Savitz follows:]

House Interior Subcommittee on Appropriation
Dr. Maxine Savitz
General Manager, AlliedSignal Ceramic Components
AlliedSignal Inc.

March 7, 1996

On behalf of AlliedSignal Inc., I am pleased to testify concerning recent ceramic gas turbine activity at AlliedSignal. Although AlliedSignal Inc. is a large, multi-national advanced technology and manufacturing company serving customers worldwide with aerospace and automotive products, chemicals, fibers, plastics and advanced materials, AlliedSignal Ceramic Components (ASCC), of which I am the General Manager, is a 50-person unit. AlliedSignal Ceramic Components has a goal to develop and manufacture viable high performance structural ceramics for automotive, advanced industrial and aerospace applications. Ceramic engine components are essential for the application of gas turbine engines as effective power sources for ground vehicles in order to meet performance, weight and life requirements. The ceramic gas turbine programs in the transportation and industrial Energy Efficiency programs at the Department of Energy (DOE), which this committee has supported, have made much progress in showing the performance and reliability in a gas turbine environment. We are requesting continued funding in FY1997 for the Ceramic Turbine Engine Demonstration Program at $4.5 million which includes $3.1 million for the Engine Program and $1.4 million for the Ceramic Production Program. It is also important to keep the other ceramic programs in the transportation and industrial programs at the FY1996 Conference Report level. This includes Propulsion Systems Materials, Hybrid Vehicle Turbine Engines, Ceramic Turbine Retrofit and Continuous Fiber Ceramic Composites programs.

As a result of collaborative efforts between industry, government, and national laboratories - particularly Oak Ridge National Laboratory (ORNL) - significant advances in ceramic engine design and silicon nitride material and fabrication technologies have been achieved. A number of silicon nitride components are being evaluated and actually being implemented in gas turbine applications.

AlliedSignal Ceramic Components is currently in production with three silicon nitride aerospace parts: components for air turbine starters, auxiliary power unit oil pumps and, just this month, seal runners for turbofan main engines. The oil pump parts are used on U.S. and foreign commercial aircraft such as the new Boeing 777 and Airbus A330/340; the seal runners are to be installed on engines which power business jets such as Citation, Learjet, Falcon. About 1,500 parts per month are now being manufactured. During the two years the gerotor rings have been in production, cost to manufacture these parts have been reduced 10-fold, yields have increased from 47% to 83%. Quality has been excellent - no parts have been returned - every Airbus has been retrofitted and all Boeing 777s use the ceramic gerotor rings. These and the seals are examples of the achievements of ceramic engineers at AlliedSignal Engines who have participated in the DOE ceramic ATTAP and Ceramic Engine Demonstration project, and are familiar with the design, test, and advantages of ceramics. As a result of knowledge in materials and fabrication experience from the Engine Programs and the ORNL Ceramic Technology Programs, AlliedSignal Ceramic Components was able to provide these parts in a short time, as an example, 20 days. The production decision was made within 4 months including rig and engine testing.

Within the next two years, model 85 APU ceramic turbine nozzles will be introduced into existing military ground carts followed by the commercial airlines. The nozzle program, funded as an ARPA insertion program and by AlliedSignal Engines has completed 21,000 accumulated hours and 10,000 starts. There are over 7,500 hours on the high time engine. Ten 85 APU's have been fielded on MD-80's and are flying in commercial service and four military carts have been fielded. There is currently an internally funded program between AlliedSignal Engines and AlliedSignal Ceramic Components to reduce the costs of manufacturing the 85 APU nozzles, so that the military will more easily afford them. The 331-200 APU nozzle would be the next part to be introduced into commercial use. The redesign, testing and ceramic manufacturing for this application is sponsored by DOE. The 331-200 commercial field test will provide customer confidence and demonstrate improved reliability in 767/757 applications. These insertion efforts thus provide clear benefit - reliability, durability, and customer acceptance.

Introduction of a new material such as ceramic components in aerospace applications provides experience in manufacturing, customer confidence, acceptance. As mentioned, costs are being reduced but are still too high for most automotive and industrial applications. Gas turbines, because of their temperature capability, have the potential to achieve fuel efficiency targets while preserving low emission characteristics. Ceramics have been identified as a major enabling technology and allow the gas turbine to meet the goals of a hybrid vehicle or advanced turbine systems for industrial applications. Cost of ceramic components is the major impediment to commercialization. At present, ceramic components range from ten to several hundred times the cost of their metallic counterparts. They currently are far too expensive for large scale, high volume use. Engine builders and vehicle manufacturers expect ceramic hardware to cost no more than conventional materials. This represents a significant challenge to the structural ceramic industry. To achieve parity, substantial cost reduction in every facet of ceramic component manufacturing is necessary.

In FY1994, a multi-year, cost shared program was initiated by AlliedSignal Engines as part of the DOE Ceramic Turbine Engine Demonstration Project with two ceramic suppliers. The objective is to improve manufacturing processes for ceramic turbine engine blades and nozzles and demonstrate the application of these processes to a production environment. Each supplier has implemented a focused strategy to meet annual yield, cost, and delivery goals for introduction of ceramic gas turbine components in commercial auxiliary power units (APU) in 1998. Although the blades and nozzles being fabricated under this program are for AlliedSignal Engines' evaluation in a production environment, the technologies developed are applicable to structural ceramics as used in the Solar industrial gas turbine, Allison hybrid engine and other hybrid gas turbine power plants. The silicon nitride material (AS800) being used by AlliedSignal Ceramic Components is being used on all the gas turbine programs.

It is important to continue funding the two parts of the Ceramic Turbine Engine Demonstration Project the last two years of this program - FY1997 and FY1998 at the planned $4.5 million level for FY1997 (Attachment 1). The AlliedSignal Engines' program, which provides the production environment for the ceramic evaluation needs to be continued through its completion at the planned FY1997 level of $3.1M which is less than $3.6M in FY1996 Conference Report. Less funding is needed the last two years of the program than earlier ones as the bulk of the expensive design work is complete; however, funding at the currently planned level is essential to establish and entrench the technology and experience necessary for an effective hybrid propulsion program.

Funding of $1.4 million, the FY1996 Conference Report level, is requested for the ceramic production part of the program.

The objective of the AlliedSignal Engine Ceramic Turbine Engine Demonstration project is to "Accelerate commercialization of ceramic components required for the success of a gas turbine powered hybrid propulsion system," to support the DOE hybrid vehicle goals. The goals of the program are: verify ceramic component design methods; demonstrate reliability of ceramics in service in a production gas turbine; drive domestic ceramic suppliers to fabricate components to meet print/specification at quantities of 500 parts per month; and provide the technology base for application of ceramics in an automotive gas turbine hybrid propulsion system by 1999. The program is on track to meet the stated objective and meet the above stated goals by 1999 if the planned funding level is maintained.

Accomplishments obtained in 1995 include completion of 900+ engine test hours on the initial ceramic nozzles; completion of design, fabrication and initial engine testing on two new improved ceramic nozzle configurations; completion of the development and validation of the particle impact analytical design tool for axial ceramic blades; and the training of the two Ceramic Production contractors, Kyocera Industrial Ceramics and AlliedSignal Ceramic Components in short-run SPC and SPC deployed in manufacturing processes.

Milestones to be accomplished in 1996 include: complete certification testing on ceramic nozzles in preparation for field testing; complete initial engine testing on the redesigned ceramic blades; identification of the optimum ceramic blade attachment system; and demonstration of ceramic fabrication process at 100 parts per month at AlliedSignal Ceramic Components

The 1997 milestones which would be obtained with the planned FY1997 funding include: ten ceramic nozzle equipped engines in field test; completion of 3000 hours of ceramic nozzle endurance engine testing; completion of 1,000 hours of ceramic blade development engine testing; demonstration of ceramic production cost, capacity, through-put at Kyocera Industrial Ceramics.

If funding is maintained at the planned FY1997 levels, this program will provide a body of knowledge in a timely way by the end of 1997 to assist in the hybrid propulsion system planned down-selection and go-forward planning. AlliedSignal communicates regularly with the automotive industry and its suppliers.

The AlliedSignal Engines program also provides input to the DOE, Office of Industrial Technologies Advanced Turbine Systems (ATS) ceramic engine program being conducted by the Solar Turbine Co. These two programs share non-proprietary technology data. As a result of the DOE sponsored manufacturing and scale-up tasks, AlliedSignal Ceramic Components is providing silicon nitride blades for the Solar gas turbine. These parts have been successfully tested. AlliedSignal Ceramic Components is also providing prototype parts for Allison Engine Company for its Hybrid Vehicle Turbine Engine Program and its Advanced Turbine Systems Program. In addition, AlliedSignal Ceramic Components is participating in a cost-effective Continuous Fiber Ceramic Composites (CFCC) program with Caterpillar Inc. All of these programs have been planned to provide important steps to meeting the goals of engine quality parts. Manufacturing processes suitable for aerospace and stationary gas turbine quantities of components are being developed as an intermediate step toward processes suitable for automotive quantities of components.

In November 1995, ORNL published an assessment of needs for manufacturing of ceramic gas turbine components. The purpose of the assessment was to determine the underlying technical issues that must be resolved to enable the cost-effective manufacturing of ceramic turbine engine components required for commercialization of DOE turbine technologies. One of the recommendations was for a low cost manufacturing program.

An example of a task of a new low cost manufacturing program would be to produce silicon nitride gas turbine components in quantities of several thousand per month. All processes would be selected based on two criteria: 1) demonstration of the process will be complete by year two of the program, or sooner, and 2) the capability to be scaled to 100,000 engine sets/year by 2005. Critical issues which must be addressed include component design for manufacturability, facility planning, process scale-up and automation, and cost/yield analysis to show volume and cost goals can be met. To meet the sample volume requirements of 2,000 to 5,000 in calendar year 2000, and 50,000 to 100,000 in calendar year 2004, a production demonstration program (manufacturing technology) needs to begin in 1997 at an annual cost of $2.5 million for 5 years. We urge you to initiate this program.

We realize, however, that these are times of reduced government and government spending, so your decisions have become more difficult. In that vein, one important point needs to be made - at least from AlliedSignal's point of view - that is that we're investing in the development of ceramic components concurrent with the investment we've asked this Subcommittee, the Congress and the Department of Energy to make. Over the past several years, AlliedSignal has invested over $30 million in the development of the technology and manufacturing processes necessary to keep pace with the international competition in this area. So, while we still ask for a modest level of government funding, we too continue to spend our own resources on ceramics and ceramic production.

An advanced manufacturing facility was constructed for AlliedSignal Ceramic Components in 1992. The 30,000 sq. ft. facility located in Torrance, California has state-of-the-art equipment for fabrication and characterization of structural ceramics. Additional capital equipment is added annually, e.g. our machining capability has doubled in two years. Funds are provided, not only for "real cost shared" DOE contracts, but also for IR&D at AlliedSignal Ceramic Components, AlliedSignal Engines, and the ceramic technology skill base team at Morristown, New Jersey.

The continuing partnership between DOE and AlliedSignal ensures there will be a competitive ceramic manufacturer and leading edge turbine engine technology in the U.S., which will provide more energy efficient power sources, both in the United States and abroad.

Thank you

THURSDAY, MARCH 7, 1996.

NEA

WITNESS

MARTIN MAWYER, CHRISTIAN ACTION NETWORK

Mr. REGULA. Christian Network, Martin Mawyer.

Mr. MAWYER. On behalf of the Christian Action Network and its 250,000 supporters, we appreciate this opportunity to testify on this legislation. Recently, we took a survey, an internal survey, of our supporters, and we polled them on the top 20 issues that we work on all year long, and, not surprisingly, the NEA was still among the top three. I say "not surprisingly" because our people are truly offended by some of the art work that comes out of that agency, art work which mocks religious values and which highlights sexual perversion, which glorifies profanity, which features human mutilation and sadomasochism and torture.

And for our people who grew up in a Christian background, who send their kids off to school, and their children are told that they can't pray, are even more offended to know that direct Federal dollars are going into art work that attacks their faith. So they have legitimate concerns. They have concerns about this agency and what the government is doing with their tax dollars and the message it sends to their children.

And we think that a picture really is worth a thousand words in this case, and that's why several times the Christian Action Network has hosted an art exhibit right here on the Capitol grounds in which we have brought many of the photographs and exhibits that the NEA has funded with tax dollars and put them on display for Members to see and for staff to see. And I think that's—if you read about it in the media, many staff members showed up at these events and were quite aghast at some of the pictures that are funded.

I won't waste the committee's time with going over a lot of the art that you're already familiar with, the Robert Mapplethorpe art, the Andre Serrano, which is particularly outrageous to supporters of——

Mr. YATES. How many years are you going to use those names? These were arts that were on exhibition five, six, seven, eight, or nine years ago.

Mr. MAWYER. Well, as I said, I don't want to——

Mr. YATES. You keep repeating every time you testify.

Mr. MAWYER. I don't want to waste the committee's time in going over a lot of new names, either, because I think the committee knows what we're talking about. But, Congressman Yates, anticipating you might ask that question, we have a whole catalog here of new art work that we'd be glad for you to look at on your own time because I think it's very offensive——

Mr. YATES. I'd be very glad to look at them on my own time.

Mr. REGULA. Were these as a result of NEA grants in the last two years?

Mr. MAWYER. Yes, sir. Yes, sir.

Mr. REGULA. Okay.

Mr. MAWYER. Joel-Peer Witkin, as a matter of fact, is a continual recipient of NEA funds, and in his case he takes human bodies and mutilates them. In two instances he yanked off the heads of a real life—or real dead people, cut the head of one vertically in half, turned the two sides together, and had the lips touching each other, and called it "The Kiss." In another instance, he yanked the head off of a body, cut the top off, and put a flower in it, and called it "A Flower Pot."

Mr. REGULA. What if we restricted NEA to only institutional grants, like symphonies and ballet, that type of thing?

Mr. MAWYER. I don't think so, only because we have tried very hard within recent years to work with the Endowment to come up with some practical solutions to cut down many of these grants. I honestly believe that many of the grants that come out the NEA doesn't even know they fund it. And when they come out, they come out because some artist took the money and is now boasting about what a wild thing that that person did with it.

Mr. YATES. Wait a minute.

Mr. MAWYER. The NEA is caught offguard——

Mr. YATES. You're not answering his question.

Mr. REGULA. Well——

Mr. YATES. He asked you what about symphonies and dramas, things of that sort. Suppose they were—that's right, you're still talking about individual artists.

Mr. MAWYER. I am explaining that you cannot trust the NEA with limiting it to the symphonies, the theaters, because they do not know what's happening with their money anyway.

Mr. REGULA. Well, if we had a statutory limitation, I think they would have to respect that.

Mr. MAWYER. It's not that they are the ones always intentionally going out and funding this type of art. It's the people who do not respect it who are the people who are not under your statutory limitations, the people who deceive the NEA out of the money through the grant-making process.

Mr. REGULA. So institutions that would be grantees might, in turn, make individual grants?

Mr. MAWYER. I think, Mr. Chairman, in almost all the cases the NEA is not the final culprit; it is the people who receive the money who abuse the grant application process and then turn it up on the NEA's head. The NEA is then in a position of saying, "We did not know what was happening with these tax dollars," which they'll never do, who are then saying, "Well, we didn't really fund it," until it's proven they did. Then they always come out and say, "Well, this is art." And this is why Jane Alexander recently said it is one of the purposes of the NEA to fund art that is either "outrageous, induces fear, or angers the American people."

And my point is that no agency of the Federal Government should ever take tax dollars for the purpose of outraging Americans or dispelling fear in them or for angering them. So I do ask that the committee look at this very closely and that the committee abolish the NEA, cut off its funding, and give the American people the confidence level that they need that there is someone in Washington watching over their tax dollars, and when they are told that their child cannot bring a Bible to school, which in many cases they're told that, they also know that some agency of the Federal Government is not taking a cross and dumping it into urine——

Mr. REGULA. Have you testified before the authorizing committee?

Mr. MAWYER. No, I have not, sir.

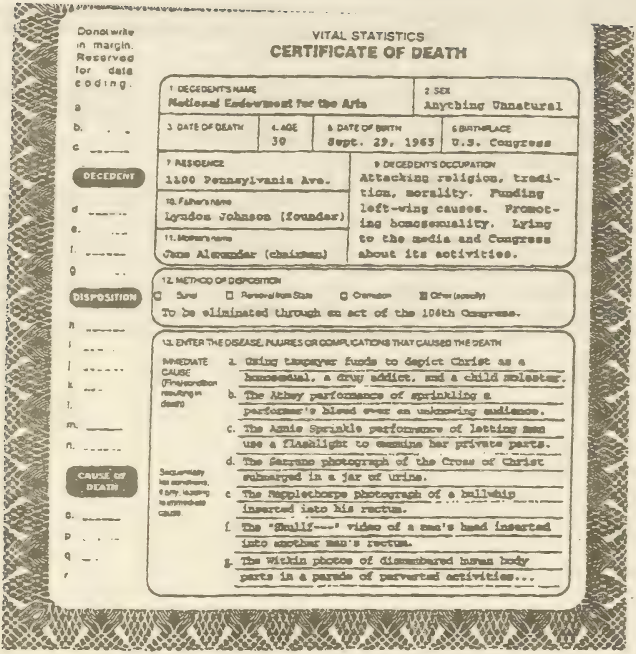
Mr. REGULA. Well, they do have jurisdiction as to whether or not the program will be authorized for the future. So probably you should take an opportunity to testify before them.

Mr. MAWYER. I appreciate that, sir.

Mr. REGULA. Mr. Yates, do you have a question or two?

Mr. YATES. I have a question. I'd like to put into the record, Mr. Chairman, the letter signed by Mr. Mawyer, dated—I'm sure he has no objection to my putting it in—November 11, containing the certificate of death that he wants for the National Endowment for the Arts. He says the father's name is Lyndon Johnson; the mother's name is Jane Alexander, the Chairman. I read that letter through. I think it's one of the most vicious, hateful letters that I've ever seen.

[The information follows:]



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a

b.

c

DECEDENT

d

e.

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DISPOSITION

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k

l.

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n.

CAUSE OF DEATH

o.

p

q

r

VITAL STATISTICS

CERTIFICATE OF DEATH

1 DECEDENT'S NAME National Endowment for the Arts	2 SEX Anything Unnatural

3 DATE OF DEATH	4 AGE 30	5 DATE OF BIRTH Sept. 29, 1965	6 BIRTHPLACE U.S. Congress

7 RESIDENCE 1100 Pennsylvania Ave.	9 DECEDENT'S OCCUPATION Attacking religion, tradition, morality. Funding left-wing causes. Promoting homosexuality. Lying to the media and Congress about its activities.
10. Father's name Lyndon Johnson (founder)	
11. Mother's name Jane Alexander (chairman)	

12. METHOD OF DISPOSITION

○ Burial ☐ Removal from State ○ Cremation ☒ Other (specify)

To be eliminated through an act of the 106th Congress.

13. ENTER THE DISEASE, INJURIES OR COMPLICATIONS THAT CAUSED THE DEATH

IMMEDIATE CAUSE (Final condition resulting in death)

a. Using taxpayer funds to depict Christ as a homosexual, a drug addict, and a child molester.

b. The Athey performance of sprinkling a performer's blood over an unknowing audience.

c. The Annie Sprinkle performance of letting men use a flashlight to examine her private parts.

Sequentially list conditions, if any, leading to immediate cause.

d. The Serrano photograph of the Cross of Christ submerged in a jar of urine.

e. The Mapplethorpe photograph of a bullwhip inserted into his rectum.

f. The "Shulif---" video of a man's head inserted into another man's rectum.

g. The Witkin photos of dismembered human body parts in a parade of perverted activities...

Members of Congress:

It's time to "pull the plug" on the National Endowment for the Arts and issue this "Certificate of Death." Stop using my tax dollars as a "life-support system" for this agency. Please bury the NEA and put and end to its assaults upon religion, its mockery of Christ, its attacks on values, its ridiculing of beliefs, and its glorification of obscenity and homosexuality.

Distributed by Christian Action Network
P.O. Box 606 • Forest, VA. 24551

Mr. MAWYER. And in all due respect, Congressman, that was not funded by NEA. Many of the creative things that the NEA has funded is hateful, that is anti-religious, funded directly with tax dollars. Not a single tax dollar went to that. And I believe that you are in favor of creativity, are you not?

Mr. YATES. In favor of what?

Mr. MAWYER. Creativity?

Mr. YATES. Oh, yes.

Mr. MAWYER. This right here is creativity. [Laughter.]

Are you not in favor of creativity?

Mr. YATES. Yes, but you're not. [Laughter.]

Mr. MAWYER. I am in favor of creativity, but I'm not in favor of tax dollars for——

Mr. YATES. Well——

Mr. REGULA. Beauty is in the eye of the beholder. [Laughter.]

Mr. YATES. I just——

Mr. REGULA. I understand.

Mr. YATES. I just want to talk about his testimony for a minute.

On page—well, the pages aren't numbered, Mr. Chairman—on the third page of his testimony, he says this: "The examples I cited"—after talking about Mapplethorpe and Joel-Peter Witkin and Andre Serrano, Mr. Athey, whose names keep getting repeated year after year after year—he says this: "The examples I cited * * * are only a small portion of the outrages we have discovered over the years. There are dozens and dozens more."

Dozens and dozens? How many does that mean in your——

Mr. MAWYER. There's a whole book right there, and here's something that was funded just last summer, "How To Have Sex with Newt Gingrich's Mother," and all the highlighted areas that I—if you want me to read them—I don't think you really want me to.

Mr. YATES. That wasn't funded by NEA.

Mr. MAWYER. It is not only funded by NEA, it has their logo on this sheet. It has the NEA logo on the paper.

Mr. YATES. Well, that's——

Mr. MAWYER. But this is exactly what you're doing——

Mr. YATES. That's a contract they no longer do.

Mr. MAWYER. You're doing exactly what the NEA does; you just deny it. You put your name on it and then you want to deny you had anything to do with it.

Mr. REGULA. Would you like to submit that for the record?

Mr. MAWYER. Yes, sir.

Mr. REGULA. All right, without objection.

[CLERK'S NOTE.—Information would not be discernable if reduced to fit this format. Information is available in committee files.]

Mr. YATES. All right, "There are dozens and dozens more. * * * please allow me to continue a few myths about these works."

"Supporters of the Endowment insist that, among the tens of thousands of grants over the years, there are only several dozen works of a controversial nature." I have said that; that's true. That's my own statement.

"They say that's not a bad * * * record, so let's just leave well enough alone.

"There are several dozen, yes, and if that were it, that would be enough. But how many more? Only these have come to light, and we are constantly discovering more. However, contrary to popular belief, we do not go to a big city museum every weekend and scour the walls to find NEA outrages." That surprises me. "We don't go on NEA hunting expeditions. The controversial projects we cited have all come to us by happenstance—from our supporters, from our friends, from reports * * *. There may be hundred or possibly thousands more objectionable grants that we simply do not know about."

I notice that in your testimony today you talked about your 250,000 supporters; is that what you said? In your letter of May 8, 1995, you talked about the Christian Action Network, 65,000 supporters. What happened to the 400,000 supporters, the 40,000 supporters that you lost?

Mr. MAWYER. Excuse me. What was that dated, the one that you're pointing to?

Mr. YATES. Two hundred and fifty thousand——

Mr. MAWYER. What's it dated?

Mr. YATES. May 8, 1995.

Mr. MAWYER. Right, and what's the—we're a lot farther along than that.

Mr. YATES. And now you have, what, 250,000?

Mr. MAWYER. Two hundred fifty thousand supporters.

Mr. YATES. Really? And they all make contributions to your organization?

Mr. MAWYER. They all have responded to this organization. We don't require somebody to have to give us money to be a supporter.

Mr. YATES. Okay, Mr. Chairman, I'm not going to cross examine this gentleman any further. I just want to place in the record, with your permission, Mr. Chairman, an article that appeared in The Sun Times for November 11, 1994, showing what the NEA really does, not what Mr. Mawyer says they do, but what the NEA really does, in providing music, which is a form of art, throughout the country, and particularly in this little town of Jessup, Iowa. I won't ask any more questions, Mr. Chairman.

[The information follows:]

Chicago Sun-Times
IL-123 CHICAGO, IL
D 528,324
NOV 11 1994

Quartet Strikes The Right Chord In the Country

By Wynne Delacoma
Classical Music Critic

Jesup, Iowa, population 2,000, in the fertile east central part of the state, had everything a small farm town needs

Feed stores Grain elevators A video store The usual collection of churches and schools, libraries and parks A Wal Mart 10 miles down the highway And a string quartet in residence.

And not just any string quartet For two years, until this past June, Jesup was home to the Ying Quartet, a set of brothers and a sister from Winnetka who have been amassing the kind of credentials on which important classical music careers are built

Now ranging in age from 24 to 30, the Yings have won prestigious competitions, including the 1993 Naumburg Award. Graduates of the Eastman School of Music in Rochester, N.Y., violinists Timothy and Janet, violist Phillip and cellist David have a busy international touring schedule, including a Japanese tour next May.

(The quartet plays music of Bartok, Beethoven and Schubert on Saturday in Oak Park's "Concerts Under the Dome" series at Ascension Church)

What, we may be forgiven for asking, was a string quartet like the Yings doing in a town like Jesup?

Learning things they never thought they needed to know about music, according to David Ying Things about its intrinsic power to move people

Three years ago the National Endowment for the Arts initiated a Chamber Music Rural Residencies program to bring live music to interested small towns. The Yings eagerly applied

"Being a young quartet, you can't make a living playing concerts," said Ying. "We figured that even if we lost some touch with the general musical world, it would be a really good opportunity to practice performing. We thought it might be quiet out there"

Jesup turned out to be anything but quiet. Once the Yings settled in, they spent half their time performing and working with groups around town and the other half doing their own touring.

Mike Krumm, former superintendent of Jesup's schools, went after the NEA's program because he wanted to introduce students to a world beyond Jesup. The Yings—young and unpretentious—were a huge success. Starting out playing at schools and senior centers, they soon were attracting half the town to their concerts.

"They were everything I could have asked for," said Krumm, now school superintendent in Huxley, Iowa. "For them, it was a mission more than a job."

The mission ranged from talking to grade schoolers about their instruments to recording programs at the community college for broadcast on National Public Radio.

"It taught us some very important lessons," said David Ying "We come out of your typical conservatory experience, and wonderful as Eastman is, there is always a tendency to try and make everything sound perfect. People in Jesup could recognize quality. But what they responded to most was a sense of humanity in the music They wanted to be moved.

"A lot of people view classical musicians as some sort of trained animals. When people realize that you're a human being trying to share something with other human beings, it takes on a whole other dimension"

Ying Quartet

- 8 p m Saturday
- Ascension Church, East and Van Buren Oak Park
- $10 to $20
- (708) 383 6456

Members of the Ying Quartet are (from left) Timothy, Janet, David and Phillip.

HIGH SCHOOLERS AMONG BIGGEST FANS

In Jesup, Iowa, youth was an advantage for the Ying Quartet

"It rips down the stereotype that classical music is only for older folks," said David Ying "The fact that we come in dressed in blue jeans and play music that gets us really excited—it makes them think

"When we play for high schoolers who have never heard this music before, we don't expect them to instantly go out and buy string quartet records. We do hope they can understand what a special art form this is and understand a little about what makes art classic, as opposed to popular stuff which comes and goes and is more of a cultural phenomenon

"I don't think you're going to see professional string quartets coming out of Jesup, Iowa, but on the other hand, some of the people who became the most devoted listeners of string quartets were some of the high schoolers.

"At first, it was the kids who brought their parents to our concerts, rather than the other way around," Ying continued, "because the kids knew us from school We remembered the days when our parents were kind of dragging us to concerts, so we laughed to see the kids bringing their parents."

Wynne Delacoma

Mr. REGULA. Thank you. I would point out—we have the same concerns you do—that in 1996 in the appropriations we have no individual grants. Maybe some institutions violate that; I don't know. And we've put in the Helms language, which is pretty tough. That's already in the 1996 bill. It isn't signed yet, but we've put that in the bill, and, hopefully, eventually the President will sign it, and he didn't mention it in his veto; he did some other things, but that means—and no secondary grants. So we're trying to get at the problem with very restrictive language.

Mr. MAWYER. Yes, sir, and all three of those things we have been promoting to the NEA for the past three years. So it's excellent that those limitations have been placed on it.

Mr. REGULA. And, of course, there's substantial reductions, you know.

Mr. MAWYER. Yes, sir.

Mr. REGULA. Well, thank you for coming.

Mr. MAWYER. Thank you, Mr. Chairman.

Mr. YATES. To which I objected.

Mr. REGULA. Yes, I understand.

[The statement of Mr. Mawyer follows:]

Christian ACTION Network

Martin J. Mawyer
President

BOARD OF DIRECTORS:
Dr. Jim Dracup
Mr. Roger Ott
Attorney David Wm. T. Carroll

Testimony of Martin Mawyer, President
Christian Action Network
House Appropriations Subcommittee on Interior
The Honorable Ralph Regula, Chairman
March 7, 1996

Contact: Tom Kilgannon
(703) 378-8701

Mr. Chairman and members of the committee, thank you for allowing Christian Action Network the opportunity to submit this testimony regarding the National Endowment for the Arts (NEA) to the Committee. Christian Action Network, (CAN) was founded in 1990 to promote pro-family issues and to advocate traditional American principles of religious liberty, public virtue and good government. Since our inception, CAN has grown to nearly 60,000 members representing each of the fifty states of the Union.

In the years that Christian Action Network has worked on behalf of our supporters, no public policy issue has engendered such resentment as Congress' continued funding of the National Endowment for the Arts. Our members, and indeed millions of pro-family Americans, view this agency as an affront to their religious beliefs, heritage and sense of fairness. In fact we recently asked our supporters in an internal survey which issues they viewed as most important. With over 15 different public policy issues to choose from, they put abolishment of the National Endowment for the Arts in the top three.

The position of this organization remains complete abolition of the National Endowment for the Arts. We respectfully urge the committee to cut off all funding for the National Endowment for the Arts immediately. Should the committee fail to do this, we urge adherence to the fiscal year 1996 House language which provides for all NEA funding to be cut off after fiscal year 1997. Further, this committee should insist on the Senate's adherence to this language as well and no increases in appropriations from last year's amount should be allowed.

No agency of government has done more to insult the values of traditional Americans than has the NEA. Over the years Christian Action Network has identified numerous NEA-supported works of art which mock religious values; highlight nudity and sexual perversion; glorify profanity; feature human mutilation; and celebrate sadomasochism and torture to name only a few outrageous examples.

P.O. Box 606 Forest VA 24551

It has often been said that "A picture is worth a thousand words." So with that in mind, this organization displayed, on several occasions, many of these so-called works of art which are the cause of controversy. We exhibited these government subsidized works for you and your staff members to view, so Members of Congress could see first hand the justification for the outrage of millions of Americans.

Consider some of these works supported with the tax dollars of your constituents.

Robert Mapplethorpe photographed himself with a bullwhip dangling from his rectum. Andres Serrano desecrated a crucifix -- one of the most sacred symbols of Christianity -- by immersing it in a jar of urine and photographing it. Ron Athey used the facilities of the NEA-supported Walker Arts Center in Minneapolis to provide the audience with a primer in ritualistic blood letting. Mr. Athey's performance consisted of carving designs into the body of an assistant, drawing blood from the incisions, blotting the blood on paper towels and hanging those towels on a clothesline suspended above the audience.

Photographer Joel-Peter Witkin, a recipient of four separate NEA Fellowship Awards, is reason enough to never again entrust your constituents' money to the NEA. Among Mr. Witkin's photographs is a skull severed from a human body, sliced in half vertically and both sides rotated toward each other at the lips so that the deceased is photographed as kissing himself. Another incorporates a second severed skull from a human body and a small portion of the skull was removed from the top and flowers inserted to form a human flower pot. Mr. Witkin has also used aborted fetuses, sacrilegious imagery, and mutilated male genitalia in his work.

Joel-Peter Witkin has an equal fascination with sexual perversion. One of his photographs shows a woman inserting her foot into the rectum of another person; a man's sexual organs stretched with a weighted pulley; and a naked hermaphrodite imaged to resemble Jesus Christ. I could cite many more examples, but you get the picture, so to speak.

No Member of this Congress would be willing, in a newsletter to constituents, to highlight his support of taxpayer funds for such degeneracy. Therefore, no American should be forced through taxation to pay for such projects. These works are hateful, gruesome, and in no way enhance the general welfare of the people of this country.

As I said, Christian Action Network displayed these so-called "works of art" so Members of Congress would have a better idea of how the NEA was spending their constituents' money. When we held our exhibit, we invited the news media to report on what we thought was an interesting story about government waste. Many members of the media did come and write stories. But the excuse for not showing up that one television news producer gave us, put this whole debate about the NEA in proper perspective.

This particular news producer was with one of the television networks and when we described the photos on display, he told our media representative, "We will not send a camera crew to cover the event because we can't put any of these photos on T.V., and we will not have a story."

With justified frustration, our media representative explained to him that the fact that this television network could not show these government subsidized works of "art" on television because of their sexual and perverse nature, was the story and precisely the reason they should send a crew to cover it.

The examples I cited earlier are only a small portion of the outrages we have discovered over the years. There are dozens and dozens more. And please allow me to dispel a few myths about these works. Supporters of the Endowment insist that among the tens of thousands of grants over the years, there are only several dozen works of a controversial nature. They say that's not a bad track record so let's just leave well enough alone.

There are several dozen, yes, and if that were it, that would be enough. But how many more? Only these have come to light, and we are constantly discovering more. However, contrary to popular belief, we do not go to a big city museum every weekend and scour the walls to find NEA outrages. We don't go on NEA hunting expeditions. The controversial projects we cited have all come to us by happenstance -- from our supporters, from our friends, from reports in the media and likewise. There may be hundreds or possibly thousands more objectionable grants that we simply do not know about.

Furthermore, even if these were the only objectionable grants, NEA apologists insist that we should forgive and forget because there are so few. We reject such illogic. The National Endowment for the Arts is using the tax dollars of the population to ridicule the religious beliefs and sensibilities of a significant portion of the American people and it is an outrage. Regardless of whether or not this is done intentionally or deliberately, regardless of whether it is one grant or one thousand grants -- it is wrong, it is wrong, it is wrong. I beg this committee: act now, act decisively. End all funding for the National Endowment for the Arts and end government sponsored bigotry once and for all.

The chairman of the Endowment, Jane Alexander, likes to dismiss the controversial projects as she did last year at the National Press Club by telling us that the arts are "only doing their job" if they "cause outrage, fear and anger." Mr. Chairman, if Jane Alexander is correct and this is the role of art in our society, then by no means should the government be in the business of deciding which citizens should be outraged, intimidated, and angered at their own expense. Art is supposed to be beautiful, it should lift the spirit and lighten the burdens of the heart. It should not be used -- particularly by government -- to "outrage, fear and anger" people who place their trust in government.

But perhaps Ms. Alexander's philosophy toward the arts explains why neither she nor any other past chairman to my knowledge has ever apologized to the public for wasting tax dollars on these very controversial and frivolous grants. Ms. Alexander has never sought to re-collect, on behalf of the taxpayers, funds for controversial projects that were widely denounced by the public and Congress.

Now let me clearly state the position of Christian Action Network on this issue of controversial art. We believe these people have every right to create such works on their own time and with their own resources and sell them in the marketplace if they so desire. What they are not entitled to is public subsidies to aide them in such pursuits. Some claim that to cut off funding for the NEA is to quash artistic creativity and violates the First Amendment rights of the artists. This is the apex of absurdity. Just as this committee did not need to give me a grant to speak before it, neither do artists need government money to express themselves. They claim that to shut down the Endowment is to engage in wholesale censorship. By that definition, the Endowment itself it the biggest censor of art in this country.

The arts will continue to flourish in America without the National Endowment for the Arts. In fact, after having to operate with significant cuts to the NEA budget, America has not turned into a cultural wasteland as we were warned. Nor will it if you cut off funding entirely for the NEA. The American public are a people of tremendous discernment and common sense. Let them be the arbiters of their cultural needs. Let them decide which museums they want in their communities and which theater productions to patronize.

Don't allow supporters of the NEA to come before this committee and tell you that the arts will perish without the NEA. It is not true. There will always be a stage for the good and wholesome art -- philanthropists, private charities and communities will see to it. But to confiscate the money of the people through taxation, return it in lump sums to an elite few, and claim government generosity in doing so is not only bad public policy, it is insulting.

The money the NEA awards is not new or found money. It is that which has been taken from the people. It is theirs. When the people are taxed, a portion of those tax dollars go to the NEA. The NEA then takes that money and returns it to, not everybody, but only a very few. And it does not return all of it, but a very small portion of it. Because naturally the NEA insists on keeping some of it for overhead, administrative costs, salaries, travel expenses, and within any bureaucracy there is always some waste and fraud.

Let your constituents give directly to the arts if they so desire and stop forcing them to adhere to what you think is good for them.

Mr. Chairman, on behalf of the 60,000 supporters of Christian Action Network and millions of other pro-family Americans across the country, I strongly recommend no further appropriations be made to the National Endowment for the Arts. This is a time of sacrifice for all Americans and artists should be no exception. This Congress has the opportunity to drastically change federal priorities and set a new standard for the way business is conducted in Washington.

To continue appropriations for the Endowment -- at any amount -- and hope for the best, will produce no change in the works which are funded by the NEA. Nor will continued funding of the NEA comport with the public's wishes.

Again, I strongly urge an end of all appropriations for the NEA. This is the only way to ensure the American people are no longer forced to subsidize others who are only out to attack them.

Thank you.

Additional Questions Submitted by Mr. Yates

Q: I wonder if you could explain to me this "Death Certificate" for Jane Alexander? It is my understanding that you were urging your members to sign this "Certificate of Death" for Jane Alexander and the NEA and that you were planning to put all of the "Certificates" in a coffin and parade around the Capitol with this coffin. If this is true I find this highly offensive. Did this "Certificate of Death" come from your organization? Are you advocating the death of Jane Alexander?

A: No, Congressman, I am not advocating the death of Jane Alexander as you can plainly see from the "Death Certificate." What we are advocating, as we have advocated for many years, and what many members of Congress have advocated, and what other interest groups have advocated, and millions of American taxpayers have advocated, is the abolishment of the National Endowment for the Arts. We do so because this is an agency which has used the precious resources of the American people to insult them, ridicule their values, and mock their religions.

The Death Certificate which you are referring to, is a highly creative, even artistic, (if I do say so myself), way to advocate the abolishment of the National Endowment for the Arts. I do hope that you of all people would not oppose my right to be creative and artistic. As for your feeling offended by it, perhaps that is a positive outcome, and I say that respectfully. Perhaps now you have an idea of how the supporters of Christian Action Network feel when an image of their Lord and Savior is deposited in a jar of human waste and photographed. Perhaps now you can understand the frustration of Christians when they discover that taxpayer dollars are used by the NEA to support works which depict Jesus Christ as a homosexual, child molester and drug addict. Perhaps now you have a better appreciation for those Americans who object to their incomes being withheld in taxes and those tax dollars being used to support the photographic perversions of Joel-Peter Witkin.

Congressman, if you are offended by this Death Certificate, and I don't doubt that you are, think how offensive it would be to you if your tax dollars were confiscated to pay for it. Think how you would feel if the federal government put its stamp of approval on it. Think how you might feel when Members of Congress stood on the floor of the House or Senate and defended it and defended the use of taxpayer dollars to support it. Think how that might feel, Congressman.

Finally, and quite frankly Mr. Yates, what I find offensive is the fact that for years you have stood on your soapbox on the floor of the House saying you are protecting free speech but yet you object to my coming to this committee to testify and exercise my rights to free speech. It seems that if I were to attack religion, or engage in perversion, I might get a much warmer welcome from some members of this committee. That, Mr. Yates is what I find offensive, for the record.

Q: Mr. Mawyer, in your book "Defending the American Family: the Pro-family Contract With America" you write that "art can be destructive" and that "art is not necessarily a constructive force in society." Do you dislike art so much that you think it should be denied to everyone? Would you really impose your values about art on the rest of the nation?

A: Mr. Yates, I respectfully suggest that if you objectively analyze the position of this organization and the position of the National Endowment for the Arts, and your own position for that matter, it is the NEA and you who are imposing your values about art on the rest of the nation. It is this Congress that appropriates taxpayers' money for art. It is the NEA which approves or rejects art for public consumption. Every time you vote to appropriate money to the NEA and every time the NEA approves a grant, you are imposing your value of art on the nation. And so what if it is an opera or a ballet or a musical. Perhaps the taxpayers would prefer a movie, or a state fair, or a painting, or a statue for the town square, or nothing at all. Why not let them make that decision. That is the position of Christian Action Network. We have enough faith in the American people to allow them to decide how much and what kinds of art, if any, they want. The only opposition this organization has to art is when it is dictated by the federal government.

As to the first part of your question, I'd be happy to answer that. Yes, in my book, "Defending the American Family," I did write that "art can be destructive." In that reference, what I was doing, was presenting differing opinions to the arguments often cited in defense of the NEA. In particular, NEA advocates often make the argument that art plays a constructive role in society. My response to that in the book was, "Often it does. But art can be destructive as well, since anything powerful enough to move people to do good can also move them to do evil. To suggest otherwise is to say that novels and paintings and films are finally irrelevant." If we insist that art only moves people to do good, we're not being honest. If we say that art does not move people at all, then we certainly should not be spending federal funds on the arts.

Q: You also write that "the gay influence has been pervasive" at the NEA. What does that mean? Are you opposed to gay and lesbians working at the NEA or for the government?

A: What we want is for every American citizen to be treated fairly and equally and that applies to homosexuals as well. What we are opposed to Congressman, is the practice of advancing a political agenda, and in my opinion, a radical political agenda, from an agency of the federal government. I believe the homosexual agenda is over-represented at the NEA. I think also that Jane Alexander's outlook to the homosexual community is instructive. In a February 22, 1994 interview with "The Advocate," Ms. Alexander said, "We need to introduce these people (the so-called 'right wing') gently to gay themes all across the country...You gently bring in gay people and introduce them to the world through art." Clearly, Ms. Alexander envisions as one of her roles at the NEA to advance the cause of homosexuals. That is wrong. In that same interview, she was asked, "What sorts of grants would you reject out of hand?" She came up with only two examples saying, "It would be hard for me to accept something that had a terrible racial or homophobic slur." Apparently Ms. Alexander views religious slurs as perfectly acceptable and worthy of government funding while homophobic slurs are not. Government mockery of any group of people is wrong, and it is an outrage that Ms. Alexander would not repudiate all government funded hatred.

Q: In one of your letters soliciting money, you mention that the Federal Elections Commission is suing your organization for $3.5 million. Why were they suing you?

A: Because we dared to exercise our First Amendment rights to free speech. How is that for irony, Mr. Yates. The federal government, the entity you point to as being the promoter of free speech, is suing Christian Action Network, the entity you point to as free speech's worst enemy, because we dared to exercise our rights.

Q: What percentage of your organization's budget is spent on lobbying elected officials?

A: I don't know the percentage off hand, but I would say most of it. And let me add this: All of our funds are privately raised and voluntarily contributed. We receive no federal money, unlike many arts agencies which have received grants from the NEA and then send representatives to this committee to beg for more NEA funding. I respectfully suggest that your time would be better spent investigating those organizations which receive federal funds.

Q: How much money does your organization raise by sending out direct mail attacking the NEA?

A: Not nearly as much as the NEA gets from the federal government to attack Christianity.

Q: Isn't it true that if the NEA is abolished -- as you would like it to be -- that your organization would lose its major fund raising tool? Wouldn't you rather that the NEA continue to limp along so that you can raise money from your members by railing against the Endowment?

A: Congressman, if the National Endowment for the Arts were abolished then I would not be able to raise funds to abolish it, yes, you are correct. Therefore, if you're so offended about our fundraising practices, then why don't you just go ahead and abolish the agency and you may never have to hear from us again.

THURSDAY, MARCH 7, 1996.

NEA

WITNESS

BARBARA RUSSO, NATIONAL ASSEMBLY OF STATE ARTS AGENCIES

Mr. REGULA. At the request of Mr. Yates, I want to move the order and call the National Assembly of State Arts Agencies, Barbara Russo.

Thank you for coming.

Ms. RUSSO. Thank you for having me, Mr. Chairman and Congressman Yates. I appreciate the opportunity to be here on behalf of the National Assembly of State Arts Agencies. I'm pleased to be here to testify in support of the National Endowments for the Arts' budget for Fiscal Year 1997. My name, as you mentioned, is Barbara Russo. I'm the first vice president of the National Assembly of State Arts Agencies and executive director of the New Jersey State Council on the Arts. I'm here to represent the collective voice of State arts agencies and think that my testimony, hopefully, can be a much more positive one, reflecting the accomplishments of the NEA over the year and the power that we've seen in the work that they've done.

Mr. YATES. How much pornographic work have you subsidized?

Ms. RUSSO. We have not subsidized pornographic work.

Mr. YATES. Not of any kind?

Ms. RUSSO. We don't—we do not subsidize pornographic work.

Mr. YATES. Okay.

Ms. RUSSO. We support the work of arts organizations and artists in making the arts available to Americans throughout the country. We believe that that's part of our mission.

We come to you this year realizing that available Federal discretionary dollars are restricted. Unfortunately, as you mentioned earlier, Federal funding for the arts has taken more than its share of cuts toward the goal of balancing the Federal budget. We urge Congress to change the direction of the serious departure from the Federal commitment to supporting the arts. While the Federal Government has cut back on its spending, we note that State legislatures throughout the country have maintained a very strong commitment, and we feel that this is an indication of the support that their community and their community leaders feel in the need to support the arts and the importance of public support for the arts.

Even though the State appropriations for the arts over the past four years have remained steady or have increased, we note that in individual States there are fluctuations. This is very often a result of the economic conditions of that State, and it's one of the reasons that we think it's important to have a steady Federal commitment. It acts as a foundation for funding the cultural resources in the community in making those arts available.

When Federal arts funding is cut, those reductions are felt at the State and county and local level, because those dollars work in close partnership with, and help leverage, State and local and private sources many times greater than the Federal dollar itself. And I'd like to give you an example of that.

The National Endowment for the Arts arts education program provides basic support for programs that make the arts basic to education. Until recent Federal funding cuts, $5 million from the National Endowment for the Arts supported arts education programs in awards to States. The States then overmatched that money five times, awarding a total of Federal and State contribution of $27 million for arts education projects. This, in turn, generated local cash matches, money from the private sector, and local governments, and created a project worth $500 million, 19 times the original State and Federal investment.

That combination of $27 million in Federal and State funds for arts education resulted nationally in bringing over 132,000 artists to 7,000 projects to over 3,000 communities throughout the country. That's work where the artist had an opportunity to work with the kids directly. And in New Jersey, that meant that over 25,000 students had an opportunity to work with artists and over 1,400 teachers.

We feel that Federal dollars spent on arts education programs are a good investment because we know that the programs work. They have a real impact on children's lives.

And I have another specific example. A New Jersey school principal was recently quoted in The Newark Star Ledger during a poetry residency in her fourth and fifth grade classes. She said, "We have one boy who has struggled through school. We've all worked with him, but it's been very, very hard for him to learn. In the past four days, he has turned out work that has surprised and delighted us all. We just didn't know he had it in him. The poet gets the kids to dig inside themselves, and their ideas are absolutely fantastic."

This is one small example of the power the arts have to advance the student's academic development. Experience in the arts opens up different ways of understanding, different ways of knowing, and different ways of learning. And this is particularly important for the student who has trouble with the traditional method of teaching. When funding is cut to the arts and it results in funding cuts to arts education, it means that there are students throughout this country that will not have that opportunity.

Obviously, they reductions have impacted other areas as well. Many of the quality arts programs funded by the NEA or State arts agencies, using Federal grant money, directly address the challenges that we as Americans face: to make a better life for our children and to build strong communities.

Creative partnerships between State arts agencies and other organizations apply public money in constructive ways that increase the impact of the arts and stretch the value of the Federal dollars.

Mr. REGULA. You have about a half a minute.

Ms. RUSSO. Okay, I'll wrap up real soon. But I want to give you one example. It was a very inspiring example of this in my State, when a folks arts apprenticeship project was funded to pass on the artistry of gospel music to one student. This has evolved into a project into the creation of a community youth choir and more. Chequita Lumzy, who's a master artist and member of a renowned gospel group, the Lumzy Sisters, took on an apprentice. This experience so energized her that she resolved to pursue her lifelong dream of starting a youth choir for at-risk children in her community.

First, she organized several churches in the New Brunswick area and the Asbury Park area, and she solicited help from a local drill team to identify the students, so that she could mentor them as they learned traditional African-American gospel music.

The New Brunswick Cultural Center and the Carter G. Woodson Foundation joined with her to present the concert and present workshops for African-American youth leaders. She's now working with the New Brunswick youth—with the Job Corps Training Center in New Brunswick, I'm sorry.

We have no idea how far this project will go, but it started with an initial investment of $2,000 from the Federal Government. We have many examples, and I will end here, but I want to tell you the one project that I'll leave with you is a collaborative project with the National Assembly of State Arts Agencies, the National Endowment for the Arts. We also joined with the Department of Health and Human Services and the Department of Justice to create this document which is part of the solution, "Creative Alternatives for Youth." It was distributed to over 30,000 counselors and youth at-risk programs around the country, demonstrating how the arts can help address some of those challenges that affect us all.

Thank you.

Mr. REGULA. Do you have any problems with our conditions no individual grants, the Helms language, and no secondary grants?

Ms. RUSSO. We know that the Endowment has been restructured. We think that many of the issues that were raised in the earlier testimony will be addressed through that restructuring. We feel that that commitment is very vital to make sure that the arts are accessible to people.

Mr. YATES. What would be—you have testified about the stimulation that the arts endowment grant gives economically to the local community. What would happen, in your judgment, if the funding—if that funding were cut off, if the National Endowment for the Arts were killed?

Ms. RUSSO. I think it would have a devastating effect on the economy. I think we've learned through many, many studies that have been done, and in New Jersey alone we know that the Federal and public support programs have generated close to a billion dollars in other income into the economy. It's a leveraging tool. The Federal money is matched by State money; it's matched by local money. And when you have a vital and vibrant arts community, you're revitalizing the cities. When you have—you know yourself, when you go to the theater and see the restaurants operating, and that's a critical linchpin in this whole process.

Mr. YATES. I have another question. I'm sorry, Mr. Chairman.

What effect would cutting off the NEA funds have upon the programs for the children in the communities?

Ms. RUSSO. Well, that's—I think that one of the things that we can point to, and it's covered in my testimony, is that investment of the national money is a very critical investment because it starts—it's the seed money. It's the money that's been matched so many times over, 19 times over when it was $5 million; it turned into a project of over $500 million, and that might be the key to putting the arts in the school and to bringing the arts to the schools throughout the country.

Mr. YATES. Thank you.

Mr. REGULA. Thank you very much.

Mr. YATES. I'm sorry to have such limited time.

Mr. REGULA. I know, but we have nine more witnesses here.

Mr. YATES. I know. I respect Mr. Regula's endurance.

Ms. RUSSO. Thank you, Mr. Chairman.

[The statement of Ms. Russo follows:]

TESTIMONY OF BARBARA RUSSO
FIRST VICE-PRESIDENT, NATIONAL ASSEMBLY OF STATE ARTS AGENCIES
EXECUTIVE DIRECTOR, NEW JERSEY STATE COUNCIL ON THE ARTS
BEFORE THE SUBCOMMITTEE ON INTERIOR APPROPRIATIONS
U.S. HOUSE OF REPRESENTATIVES
THURSDAY, MARCH 7, 1996

Mr. Chairman and members of the Subcommittee, on behalf of the National Assembly of State Arts Agencies I am pleased to testify in support of funding for the National Endowment for the Arts in fiscal year 1997.

My name is Barbara Russo. I am first vice-president of the National Assembly of State Arts Agencies, and executive director of the New Jersey State Council on the Arts. I am here today representing the collective voice of the state arts agencies across the country. Let me begin by expressing our appreciation for your leadership, Mr. Chairman, in recognizing the value of federal arts funding and for the support this subcommittee's members have given to the maintenance of federal appropriations for the arts over the years.

NASAA advocates for a federal arts leadership role in:

- enabling people in communities nationwide to participate in the arts through providing incentive funding to state arts agencies;
- increasing, through life-long education in the arts, the ability of all Americans to appreciate the arts, and to build the creative skills to compete successfully in the 21st-century workplace;
- giving people nationwide access to excellent work through grants to organizations of national significance;
- giving people nationwide access to the arts through partnerships and direct federal funding of national initiatives that can only, or most effectively and efficiently, be carried out at the federal level; and
- providing national perspective and leadership to advancing the performing, visual and literary arts in America.

Appropriations Request

We come to you this year realizing that available spending for federal discretionary programs has been restricted. Unfortunately, federal arts funding has taken more than its share of cuts toward the goal of a balanced federal budget.

The 40 percent cut in NEA funds in the FY96 appropriations legislation -- including a reduction in federal resources available to state arts agencies -- jeopardizes, we believe, the capacity of the arts endowment to provide a meaningful level of support for the cultural and artistic programs that enrich our communities. We urge Congress to change the direction of this serious departure from a federal commitment to support for the arts, with an increase in the maximum amount possible to correct the disproportionate cuts.

While the federal government has cut back on spending for the arts, state legislatures have maintained a strong commitment to the arts. The state legislatures have continued their level of support for the arts in the face of increasing costs of welfare, Medicaid and corrections programs. In 1996, state arts agency appropriations have held steady, the fourth consecutive year that aggregate state arts funding remained level or increased.

State legislatures are good barometers for gauging public attitudes. Widespread public support for the arts was demonstrated when states at least maintained their commitment to the arts through recent, tough economic times. Now, with modest growth in many state economies, states are investing some of their increased revenues in the arts.

Although state appropriations for the arts have, in the aggregate, remained steady, some states have experienced significant increases or decreases, as always, given their particular economic conditions. That is why a steady federal commitment is important, as a foundation for funding the arts, enabling communities to maintain their artistic resources.

A basic level of federal financial support remains very important, and when federal arts funding is cut, those reductions in dollars are sorely felt at the state and community levels. Let me give you an example of how federal and state dollars work together to bring the arts to more Americans.

Arts in Education: A Case Study

The NEA's Arts in Education (AIE) funds support programs that make the arts basic to the education of students in pre-kindergarten through 12th grade. AIE money to state arts agencies is regranted locally, encouraging both legislative and local investment in arts education programming. Until the recent federal funding cuts, $5 million in NEA funding for AIE was awarded to the states, which matched the money on a five-to-one basis and awarded $27.3 million in arts education grants using a combination of state and federal funds.

This aggregate arts education grant amount in turn generated local matches, partnership contributions and earned income to create a total of $500 million worth of arts education activities -- nineteen times the original federal-state seed money. State arts agencies have found these grants to be tremendously effective in promoting excellence in education, reaching out to communities and making inroads into geographically or culturally isolated areas. Three years ago the $27.3 million of state and federal funding in arts education grants awarded by the states resulted in bringing over 132,000 artists to more than 6,900 projects involving hundreds of thousands of students in over 2,800 communities

In New Jersey last year this meant that an NEA grant of just over $167,000 was over-matched by state funds exceeding $300,000. This money was in turn awarded to schools, school districts and arts organizations to place artists in classrooms across the state. In all, nearly 25,000 children and 1,400 teachers across our state benefited from the experience of working directly with some 215 artists. Each grant from the New Jersey Council on the Arts was matched by local funds, totaling 420,000. The federal investment of $167,000 leveraged a total of over $830,000 in state and local funds.

This year, cutbacks in the federal funding commitment for arts education from $5 million to $2.8 million will mean a big drop in the number of projects we are able to support in schools around the country and a major reduction in the number of students who will receive the benefits of the arts in their educational programs.

The dollars spent on arts education programs are sound investments because we know that these programs work. The impact on children's lives is real. A N.J. principal was recently quoted in the Newark Star Ledger during a poety residency with her fourth and fifth grade classes. She said, "We have one boy who has struggled through school, we have all worked with him, but its been very hard for him to learn. In the past four days, he has turned out work that has delighted all of us. We didn't know he had it in him. The poet gets the kids to dig inside themselves, and their ideas are absolutely fantastic." This is but one small example of the power the arts have in advancing a student's academic development. We know that experiences in the arts open up different ways of understanding and different ways of learning for all children, and most importantly, for children who are not being reached through traditional approaches. Reducing funds for arts education programs will result in fewer children being given the opportunity to learn and reach their full potential.

Obviously, the reductions in appropriations to the NEA have meant a drop in overall federal funding available to the states, from $40 million, which included $5 million for arts education, to $28 million this year. The cuts have had an impact on the federal-state partnership in funding the arts in all areas. The portion of dollars allocated to reach culturally underserved communities in rural and innercity areas has been hurt as well. Just as with the arts in education funding reductions, we see the same reduced public benefit in cuts to these other federal funds available to the states. The result of the deep cuts already made in the NEA's budget is a loss in the public's access to cultural resources in classrooms and communities across the country.

State Arts Agency Grants

Arts endowment funding is an essential part of the work of state arts agencies so they can fund the arts in diverse ways that strengthen our arts organizations and extend the reach of all forms of artistic discipline and expressions.

- State arts agencies reach communities large and small. Over 5,600 communities in America received grants in 1993.
- SAA grant funds of $182 million in 1993 generated project spending of over $4 billion in local and statewide economies for such things as renting space, purchasing materials, paying salaries, buying transportation and services.
- We provide general operating and project support to arts organizations — over $50 million to performing arts groups, $26 million in museum grants, and $22 million to support local arts organizations in 1993.
- To make more of the best work available to people in our states, we offer fellowships and grants to individual artists, comprising approximately 10% of the total state arts agency grants in 1993.
- We support the arts of different racial and ethnic groups, awarding almost a quarter of state arts agency grant funds to arts organizations representing diverse cultures of color in our society.
- State arts agencies fund artists and arts organizations as resources to school classrooms and teachers, and we work closely with state departments of education to make the arts basic in the curriculum in all communities.
- Finally, to make the arts more widely available, state arts agencies distributed 14 percent of their funds in rural areas in 1993. Indeed, with a combination of federal and state appropriations, state arts agencies have funded the arts in every congressional district in the country.

Cultural Partnerships

Public spending on the arts is a good investment. Many of the quality arts programs funded by the NEA, or by state arts agencies using federal grant money, address challenges we face in America today-- to make a better life for our children and to build strong communities. Through partnerships between state arts agencies and other organizations we have been able to use public money in constructive ways that increase the impact of arts activities and stretch the value of the federal arts dollar.

State arts agencies frequently support efforts to integrate the arts into the programs of community organizations like the YMCA, human service organizations, health care facilities, seniors' centers, non-arts museums, and history and humanities foundations.

These grantees often develop arts programs in partnership with local artists and cultural institutions and are an important link in the integration of the arts into community life. Through creative partnerships, we are able to combine federal arts dollars with funds from other state and federal programs and with private donationa, corporate and foundation funding, earned income, and volunteer services and in-kind contributions to leverage more spending on the arts in our states. These partnerships increase the impact of arts activities and attract the resources necessary for success. And we are winning friends for the arts by showing positively how the arts can address basic issues that face our country.

One inspiring example of this in my state is how a folk arts apprenticeship project to pass on the artistry of gospel music to one student has evolved into the creation of a community youth choir. As a master artist, Chequita Lumzy, a member of the renowned gospel group the Lumzy Sisters, working with an apprentice, has been encouraged to pursue her dream of starting a youth choir for at-risk children in her community. She has organized several churches in New Brunswick and Asbury Park, and enlisted the support of the Royal Uniques Drill Team to help recruit young people for the choir and mentor them as they learn traditional African American gospel music. The New Brunswick Cultural Center and the Carter Woodson Foundation joined in this partnership to present a concert of the choir and workshops with other African American youth leaders. From here, Chequita will be working next with the Job Corps Training Center in New Brunswick.

Through our collaborations between arts organizations and a range of other agencies — economic development, tourism, education, job training, drug abuse prevention, criminal justice, public health, housing and urban development, parks and recreation, transportation, and rural development — we are able to encourage state and community leaders to work together to incorporate the arts into their initiatives to improve communities.

In New Jersey, the arts art helping our communities, our economies, and our lives to improve. Investment in building cultural facilities along the waterfront in Camden is breathing new life and hope for the future. Likewise, in Neward, our largest city, the construction of a major arts center is the lynch pin for the entire downtown redevelopment of a once great city seeking to bring itself back.

In the Victorian seacoast town of Cape May, the six week Cape May Music Festival adds over $2 million to the tourist economy, and tourism is New Jersey's second largest industry. A group called Special Audiences specializes in working with kids from economically depressed urban areas and especially with kids at risk holding up the arts as an alternative to drugs and crime. Similarly, the Jersey City Museum sponsors summer projects for kids channeling their energies into artistic expressions rather than the temptation of the street, and providing substantial job training experience while they are at it.

Theatres like the renowned Paper Mill Playhouse and the Tony Award-winning McCarter Theatre have erected major outreach programs with model projects to bring the arts to sight-impaired, hearing-impaired and wheelchair-bound persons. Back in Camden, a collaborative project of county government and a regional orchestra provides live music to home-bound and terminally ill hospice patients to relieve their pain and give them some joy. Wherever you turn, the arts are a part of the solution, and this is the great and often untold story of what public support for the arts has helped to accomplish.

NASAA, in collaboration with the NEA, the Department of Justice, and the Department of Health and Human Services, has published a compendium of arts projects that work for youth at risk. We have distributed 30,000 copies of the book, Part of the Solution: Creative Alternatives for Youth, to counselors and youth-at-risk programs around the country.

By combining our arts dollars — federal, state, and local — with other funding partners, we are able to increase the impact of the available arts money to reach more people and benefit many more lives. The possibilities for public support of the arts are diverse and exciting. With increased federal appropriations the states, and indeed all arts organizations, can expand on those possibilities and bring to all Americans full opportunities to experience the arts.

THURSDAY, MARCH 7, 1996.

DOE

WITNESSES

CHRIS HALL, PETROLEUM TECHNOLOGY TRANSFER COUNCIL
DEBORAH ROWELL

Mr. REGULA. Okay, our next is Petroleum Technology Transfer Council, Chris Hall.

Thank you for coming.

Mr. HALL. Mr. Chairman, thank you, and I've asked Deborah Rowell, who testified last year, to come with me in case there were any questions that she can answer. I know that you have met with her before.

My name is Chris Hall, and I'm an independent oil and gas producer from Los Angeles, California and president of Drilling Production Company, which is a fourth generation family-owned business. I'm very active in industry affairs, including the California Independent Petroleum Association and the Independent Petroleum Association of America. I'm honored to have the opportunity to appear before you as one of the founding members and the current national chairman of the Petroleum Technology Transfer Council.

I have taken the time from my business to travel here to share with you what I believe are extremely exciting developments that have taken place during the past in the Department of Energy oil and gas programs, with specific emphasis on the PTTC.

As you have come to learn, the PTTC was founded by a group of producers who recognized that there was a problem in the oil patch of transferring technology; namely, there was no mechanism within the industry to identify existing operational problems within a producing region, and then to focus technology from all regions of the country in the industry to address those problems. Although the Department of Energy had numerous ongoing programs, none of them addressed this serious shortcoming.

The PTTC was designed to be a low-cost, high-impact program that could help reduce operating costs and thereby help maintain an industry——

Mr. REGULA. Are you a clearinghouse for petroleum technology?

Mr. HALL. Yes, sir, effectively, that is what it is, to identify the problems, especially of mid- to small-size producers who are producing marginal barrels in the country——

Mr. REGULA. The basis for Federal funds is that it overall enhances the development of the resource or you get more out of the well?

Mr. HALL. Yes, sir, and we saw the need for a cost-share program—it's a five-year program, as you may recall—to provide the seed money that the industry, given its current state of depression, did not have the resources to——

Mr. REGULA. So you get private as well as Federal money?

Mr. HALL. Yes, sir, it is a 50 percent cost-share program. In fact, our cost-share funds are exceeding the 50 percent rate currently.

The program also has been extremely successful this year in holding problem identification workshops. They not only help the producers with focused technology sessions that follow that, but one thing that we realized was that the Department of Energy in their oil and gas program had no program to go out and identify those problems, so that they would be aware of what those problems were within the oil patch. In fact, Secretary O'Leary, as part of her program in response to the Oil Caucus, had directed that those workshops be done. They were already done by the Petroleum Technology Transfer Council as a result of their program.

Mr. REGULA. If you'd summarize for us——

Mr. HALL. Yes, sir. The other area that we have been extremely successful is in the dissemination of information on behalf of the Department of Energy. There was no mechanism within their procedures to disseminate information that they had, technological, to the oil companies——

Mr. REGULA. Any company in the country can plug into your resources?

Mr. HALL. Absolutely. And it is very successful.

Mr. REGULA. Big and small?

Mr. HALL. Yes, sir. The other advantage that we have had for the Department of Energy and why they are now very strong supporters of this program is that we provide contact with the producing industry, with the producers, and this is something they did not have, and maybe explains why in the past they have not had support of the industry for their own programs.

We look forward to your continuing support of the program, and we're going to continue on with the path of success.

Mr. REGULA. Thank you.

[The statement of Mr. Hall follows:]

Testimony of
James C. "Chris" Hall, Chairman
Petroleum Technology Transfer Council

Before the
House Committee on Appropriations
Subcommittee on Interior and Related Agencies
March 7, 1996

Re: FY97 Appropriations for Department of Energy, Office of Fossil Energy, Oil and Gas Programs and Related Technology Transfer Activities -- PTTC FY97 Request: $3,280,000.

Chairman Regula, Members of the Subcommittee, I am the elected Chairman of the Petroleum Technology Transfer Council (PTTC), an industry-driven partnership of the domestic oil and natural gas industry, the producing states, and the U.S. Department of Energy. I am also president of Drilling and Production, Inc., an independent oil producing company in Torrance, California. I am pleased to comment today in support of the Department of Energy (DOE) FY97 funding request for oil and natural gas programs in the Office of Fossil Energy. Today, I want to make several key points that support the continuation of a strong federal oil and natural gas program performed in partnership with the domestic industry and other stakeholders to benefit the national interest.

Before I begin, I want to offer the full assistance of the PTTC to the Chairman and to the subcommittee staff. Our role is to provide accurate information on oil and natural gas research and development (R&D) and technology. As a non-profit information clearinghouse for U.S. oil and natural gas, the PTTC's mission extends to the government as well as the petroleum industry.

Industry and Government Should Share in R&D Investments

Mr. Chairman, public and private research continue to achieve advances in petroleum exploration and production (E&P) technology that could yield significant national benefits in the form of increased domestic production, reduced oil imports, and increased public sector revenues. Technology advances resulting from ongoing R&D projects promise to amplify these potential benefits. Both industry and the public sector stand to gain from the development and application of advanced E&P technologies; thus both should share in the investments.

The industry's job is to explore and produce America's resources economically, supplying the nation's demand while achieving a fair rate of return for the investor. But government also has an essential stewardship role -- to ensure that our domestic resources are produced efficiently and with respect for the environment. To achieve these goals, industry and government must recognize and work together in two important functions:

- Improving our understanding of the nature, location, and extent of the nation's oil and natural gas resources and their potential to reliably supply U.S. energy needs.
- Encouraging basic and applied R&D to improve scientific understanding, develop improved E&P tools and processes, and stimulate their use by industry to maximize the technical and economic efficiency of exploration, production, and environmental protection.

During the last decade, there has been a sharp decline in domestic oil and jobs in the E&P industry. As a result, major petroleum companies are consolidating their operations in the U.S. and focusing increasingly on overseas opportunities. Many independent producers are struggling to survive in the new business environment. Industry investment in petroleum-related technology and R&D is being cut to the bone. Thus, DOE needs to continue to invest wisely in high-potential R&D that is focused toward the industry's most important needs. This means identifying where advances in geosciences and petroleum engineering can achieve the greatest yield in deferring premature abandonments and maximizing incremental oil and gas production.

Effective Technology Transfer Is Essential to Realize R&D Benefits

The full economic potential of new and existing technologies will not be achieved if producers are not aware of the technology, understand its economic potential, or feel comfortable with applying it. Nor will it be achieved if known resources are abandoned in the reservoir before the technology can be applied. Effective technology transfer is essential to achieve the full benefits of this potential and to sustain a viable domestic petroleum industry.

Investments in research and technology are worth little if the results are not aggressively transferred and applied to produce more oil and natural gas. Preliminary analyses indicate that some 80 percent of the potential benefits of improved technologies could be foregone without technology transfer. The government has already invested vast sums through the years in federally-funded research at national labs, DOE labs, universities, and other R&D providers. To truly obtain value from this investment, it is critical to continue funding the PTTC for a few more years until it is fully established in all regions, and can become financially self-sufficient.

PTTC Effectively Transfers Products of Public and Private R&D

Current technology transfer approaches are not very efficient -- particularly as they serve independent producers. Rates of technology penetration in the independent producing community are far slower than among the majors. This is the primary reason why PTTC was formed in 1994 by the Independent Petroleum Association of America, in conjunction with the state and regional producing associations, GRI, the Interstate Oil and Gas Compact Commission (IOGCC) and other groups. Studies performed by the National Petroleum Council, IOGCC, and DOE have identified significant gaps and recommended improvements that must be made by government, industry, and the organizations that support the industry.

PTTC's role is to help bridge gaps in technology transfer to petroleum producers, accelerate and improve the flow of technology information to domestic E&P companies, and provide essential industry input to the research community to help ensure that DOE and other research focuses on the highest priorities of the E&P industry. PTTC's approach is to serve as a national umbrella organization to help coordinate technology transfer activities to domestic producers and serve as an information clearinghouse.

PTTC is industry-driven, because it is the users of technology in the field who know best how to design the program. The first step has been identifying the priority technical barriers to improved oil and natural gas production in each region. PTTC then matches these needs with specific technologies that can address the problems. The next step is that PTTC performs various technology transfer functions (workshops, resource centers, Internet system, etc.) to inform producers of potential technologies to economically address their problems. Where solutions are not available, PTTC reports the technology gaps and their relative urgency to the R&D community to help guide and focus the direction and priorities of public and private research.

PTTC is Achieving its Technology Transfer Goals

Mr. Chairman, the PTTC has already made great progress since its inception in 1994.

- PTTC has completed 32 problem identification workshops in all ten regions. The technical report from the workshops provide valuable input to DOE, the Gas Research Institute, national labs, universities, and others as to the priorities for oil and natural gas R&D.

- PTTC has conducted nearly 30 technology workshops around the country, focusing on a variety of topics from 3-D seismic applications to produced water disposal. Many more workshops are planned to focus producer's attention on available technologies and information that can help them resolve specific high-priority technological problems at current prices. Some regions, such as Texas, have implemented play-based user groups for producers to share information based on geological plays in which they operate.

- PTTC recently conducted a series of traveling workshops for DOE to disseminate results of its Class 1 Reservoir Demonstration Project. These workshops were held in six cities, with seven expert speakers offering U.S. oil and natural gas producers a chance to learn from recent cost-shared field projects and apply that knowledge to their own operations.

- Seven of the ten PTTC technology resource centers are currently open, and three additional centers are expected to open in FY96, depending on the availability of funds. These centers have been established at existing technical institutions in petroleum producing regions throughout the country. They provide technical assistance, computerized workstations with access to information and analytical tools, and other technical outreach services for local operators. PTTC also plans to establish smaller satellite centers later to allow producers in remote areas to access the PTTC's information and services. Commercial vendors of technology, software, and other information have been enthusiastic about donating their products and services to the PTTC resource centers, and helping to train producers in state-of-the-art technologies to solve their most important technical problems.

- PTTC has created an electronic information system on the Internet allowing petroleum producers and other users to share information. The system links the 10 regional home pages with the national Headquarters web site. The most popular feature is an interactive Technical Forum that is divided into 12 topics for users to post questions, comments or notices. PTTC is helping more independent producers to learn to use the Internet.

PTTC Helps DOE's Oil and Gas Programs Serve a Broad and Diverse Clientele

PTTC is one key element of the oil and natural gas programs in the DOE Office of Fossil Energy that makes good sense. It delivers demonstrable and measurable benefits to the producing industry and to the nation. PTTC provides a new and effective means for disseminating the results and products of federally-funded oil and natural gas research and analyses. Recently, DOE designed its new outreach program based on the PTTC regional structure. With other important DOE initiatives such as the Natural Gas and Oil Technology Partnership, the reservoir class programs, and other actions, the audience for the products of DOE programs has expanded. PTTC plays a major role in the expanded federal technology transfer activity needed to do this effectively.

Congress Should Continue its Cost-Shared Investment in PTTC

In November 1994, PTTC signed a five-year subcontract under the Management and Operating contractor for DOE's oil program to conduct a variety of technology transfer functions. The PTTC's ten regional lead organizations have pledged more than $12 million in cost-sharing during the five-year period. The original agreement with DOE called for $3.28 million in federal funding for the PTTC for FY97. These funds currently come from both the oil and natural gas programs of DOE's Office of Fossil Energy. Our total cost estimates for the five year start-up period, shown in Table I, have been scaled back by nearly 20 percent since last year, respecting the need to reduce federal spending. At the same time, PTTC has dramatically increased its non-federal cost-share.

Table I
PTTC Funding Requirements ($ Thousands)

Source of Funds/ Yr.	(Enacted) FY95	(Pending) FY96	FY97	FY98	FY99	Total
DOE FE Oil/Gas Programs	$ 2,200	$ 2,100	$ 3,280	$ 3,560	$ 3,460	$14,600
Non-Federal Cost-Share	$ 1,500	$ 1,730	$ 2,400	$ 3,200	$ 3,500	$12,300
Total	**$ 3,700**	**$ 3,830**	**$ 5,680**	**$ 6,760**	**$ 6,960**	**$26,900**
DOE Share (%)	60%	55%	58%	53%	50%	54%
Non-DOE Share(%)	40%	45%	42%	47%	50%	46%

Continued federal support of PTTC is needed to continue the program until it is completely established and can survive on funding from industry and state governments. Beyond FY99, we expect that PTTC will not longer need federal funds, as we continue our efforts through self-generated revenues. We believe that this initial seed money investment by the DOE will be returned in multiples through incremental federal revenues from new projects and additional energy production that will be stimulated by effective technology transfer.

DOE's Oil and Gas Programs Provide Vital Services to Government and Industry

Mr. Chairman, I want to close my testimony on behalf of America's independent petroleum producers by asserting that Congress should continue to support an active DOE role in petroleum-related R&D and technology transfer. Oil and natural gas are strategically and economically critical national resources, and the value of DOE programs in these areas extend far beyond geoscience and engineering research. Through technology transfer efforts such as the PTTC, the results of federally-funded research will reach operators in the field, where it can be used to preserve our national energy security We encourage Congress to provide the funding that DOE has requested to continue its vital oil and natural gas programs. Thank you.

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THURSDAY, MARCH 7, 1996.

DOE

WITNESS

PETER CARROLL, SOLAR TURBINES

Mr. REGULA. Mr. Carroll?

We'll suspend for a minute.

[Pause.]

Okay, Mr. Carroll.

Mr. CARROLL. Mr. Chairman, thank you very much. I've brought some written testimony, and I request that that be placed in the record. I'd like to make a few comments to highlight that.

The first is that I hope that the last shall be first, but this is a long day for you. It's great to have the opportunity——

Mr. REGULA. I wish we had more time. It's always very interesting testimony.

Mr. CARROLL. I want to talk a bit today about the Office of Industrial Technology project, particularly the advanced turbine system program. You've heard from Sy Ali from Allied Signal. They're one of the participants in the gas turbine program.

Mr. REGULA. Right, right.

Mr. CARROLL. And we from Solar are similarly part of that program.

The blade in your right hand is a ceramic blade. That was in the original testing. It has over 100 hours on it. The one in your left hand is the metallic replacement. And you can look at the complexity of that and the weight. It's a more costly product.

Having a breakthrough on materials development for industrial application is significant, and we think that we have—after many years of talking about it, we're actually running it in an engine. We have ARCO agreeing to be the test site for the 4,000-hour engine, so that the user community is involved and will benefit from the kind of payoffs they're going to get from that.

Mr. REGULA. Tell me, what's the technology that allows you to get this 45 percent? I think about gas furnaces. Today you buy a new house or build a new house; the gas furnace has a little pipe out the side of the wall. The old ones had a big stack. Now, obviously, the gas is being burned more efficiently in order to reduce the emissions. What do you do to make that happen? I'm curious.

Mr. CARROLL. We do a number of things.

Mr. REGULA. Okay.

Mr. CARROLL. And——

Mr. REGULA. This would be the same principle as what you're doing, I would assume, getting more bang out of the——

Mr. CARROLL. Yes, that's true. We burn much hotter than you would in your furnace.

Mr. REGULA. Okay, so heat's a factor.

Mr. CARROLL. So we burn at the most efficient temperature.

Mr. REGULA. Okay.

Mr. CARROLL. You compress the air, so you get more out of it.

Mr. REGULA. Okay.

Mr. CARROLL. And we can convert that more effectively to usable energy, and we lose none of it, or we lose a very small percentage of it. This program, when we talk about industrial applications, tends to use that waste heat that does come out of the engine for some sort of process activity.

Here's a plant at York, Pennsylvania that provides all of the heat and steam for a large manufacturing facility.

Mr. REGULA. So have you used all the energy in one way or another?

Mr. CARROLL. That's correct. That's correct. We use that waste heat just as you would use the boiler in your house, to heat the hot water——

Mr. REGULA. Right.

Mr. CARROLL [continuing]. But, of course, this is on a much larger scale. The value of going from here—and this is where we're going to be without the advanced turbine system program, and this is where we're going to go with the metal technology, and this is where we're going to go with——

Mr. REGULA. The metal technology allows you to burn at a higher temperature——

Mr. CARROLL. That's correct.

Mr. REGULA [continuing]. Is that correct?

Mr. CARROLL. Yes. And if you look at the trail of the engine, that blade, if you look at the thin edge, you'll see little holes along the back.

Mr. REGULA. Yes, that's right.

Mr. CARROLL. Cooling air has to be forced through there because the metal alone could not withstand the temperature of the exhaust gas.

Mr. REGULA. I have a company that makes fins for jet engines——

Mr. CARROLL. Yes.

Mr. REGULA [continuing]. And it uses the same principle.

Mr. CARROLL. That's correct.

Mr. REGULA. I mean in my district.

Mr. CARROLL. Yes. As a matter of fact, in our ATS program $18 million of that program goes to the State of Ohio to buy parts like that.

You asked earlier, what's the impact from an environmental point of view? In the year 2020 with some assumptions on implementation of ATS, we will increase the savings of NO_X into the atmosphere by 250 million tons. So these are significant benefits.

We would not be going here if it were not for the partnership of the Department of Energy, the Gas Research Institute, the Electrical Power Research Institute, who brought industry together and said, "Your focus, Industry, is on durability and cost; ours is on conservation and emissions. Let's partner to solve all four of those problems," and that's what this program is going to do.

Mr. REGULA. Do you agree that 1999 is about the right date for commercialization?

Mr. CARROLL. Yes, maybe 2000, but I think that's pretty close.

Mr. REGULA. That's not very far away.

Mr. CARROLL. It is not.

Mr. REGULA. Well——

Mr. CARROLL. I want to thank you very much, and I have one last comment.

Mr. REGULA. I appreciate your testimony.

Mr. CARROLL. One last comment I would like to make, earlier this afternoon there were a number of statements that this Congress had not placed high value on the environment, and I would like to say, after many, many years here in Washington, I don't think that's a true statement. I think your party has been as forceful and aggressive to see that we have sensible and reasonable environmental regulations as anyone. So I'd just like to have that——

Mr. REGULA. That's what we're trying to do, a common-sense environmental package.

Thank you very much.

Mr. CARROLL. Okay.

[The statement of Mr. Carroll follows:]

Written Testimony of: Peter A. Carroll, Solar Turbines Incorporated
Before the: House Appropriations Subcommittee on Interior and Related Agencies
United States House of Representatives
Covering the: Department of Energy, Energy Efficiency and Renewables
Office of Industrial Technology, Cogeneration/Advanced Systems Budget
Date: March 7, 1996

INTRODUCTION

On behalf of Solar Turbines Incorporated I am pleased to be able to testify before the House Appropriations Subcommittee on Interior and Related Agencies, in support of the Department of Energy (DOE) Advanced Turbine Systems (ATS) Program for Industrial Gas Turbines. This high-value program has been strongly endorsed in the U.S. by the natural gas industry, the oil industry, electric service industries and industrial users. In 1995, the program was supported by the entire California congressional delegation. To meet the goals of this program, funding levels recommended are $155 million for the Office of Industrial Technologies in order to support the ATS programs, of which $35 million are for the industrial ATS program and $10.5 million for the CFCC materials. This material line item includes $1.0 million critically needed for joint industry/agency manufacturing process development. The additional funding requirement for manufacturing will make the recently successful demonstration of these advanced materials cost-effective in multiple industrial applications.

THE REQUIREMENT

Solar Turbines Incorporated is the leading manufacturer of industrial gas turbines between 1-and-20 megawatts in the world today. Our closest competitors in this worldwide market are both European. One hundred percent of the gas turbine systems we sell are manufactured in the United States; and last year alone more than 50 percent of that product was exported to locations where the oil and gas industries operate. We are currently the only U.S. supplier that is vertically integrated. In other words, we manufacture the gas turbines and install them in package systems for power generation, gas compression, mechanical drive, and cogeneration applications - selling these under our own name throughout the world. Our unique grasp of the entire market has put us in the position to best understand what our customers want; and that is, the lowest possible first-cost for these products, coupled with the highest possible reliability. If it were not for the ATS program, I am confident that we would continue to focus on our customer needs by striving to continuously improve the reliability of our products and lower costs - placing less emphasis on efficiency, with focus to meet environmental standards currently in place.

Today, the U.S. is heavily dependent upon fossil energy. Most communities and industries are tied to the availability of these critical fuels. The DOE has as its mission to ensure that our natural resources are carefully managed. To that end, the DOE has promulgated a national energy strategy. Through the efforts of the DOE, the ATS program has been developed to take the national energy goals to industry. This program is the single largest attempt currently underway, with near-term goals to reduce liquid and gaseous fossil fuel consumption by at least 15 percent, while achieving aggressive environmental improvements. The DOE is to be commended for developing the national energy strategy and assuming responsibility for protecting this critical element of our quality of life. In applying this strategy, the DOE has properly focused on enabling technologies such as materials development and application. It has also identified ***seven key industries*** with high energy demands and targeted programs to reduce energy consumption and increase operating efficiencies while improving their environmental standing. These industries will be dependent upon the industrial ATS program for meeting their goals.

DOE/INDUSTRY PARTNERSHIP

The DOE brings together those U.S.-based industries who are focused on producing products for fuel efficiency and environmental sensitivity with the seven key industries who are pursuing lower energy costs in the face of global competition. Only through the DOE's contribution are allied industries joining in a partnership for an improved industrial America. As the stewards of the national energy strategy, the DOE has set high expectations among the partners for energy efficiency, environmental performance and economic value, without sacrificing high equipment reliability and availability standards. The ATS program is the most cost-effective way to bring together the key elements of our national energy strategy. To better illustrate the ATS program impact, Figure 1 documents emissions savings and Figure 2 shows improved fuel efficiencies for U.S. industries.

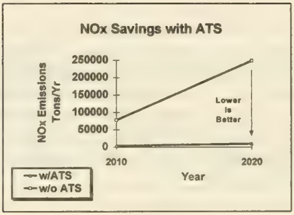


Figure 1

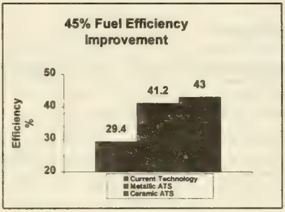


Figure 2

To demonstrate the value of the industrial ATS, we have assumed that of today's operating industrial boilers that are candidates for conversion to cogeneration, and can be taken out of service due to their age and emissions signatures, as many as 50 percent of them can be replaced by the ATS. Also, we assumed that 20 percent of the new and repowering requirements for electrical power will be met using the ATS in distributed power generation applications. These two applications will save an estimated **$154 billion** in reduced oil consumption by the year 2020. And, by switching to clean-burning, efficient natural gas, the industrial ATS will reduce consumption even further, making more gas available for socially responsible programs such as vehicular propulsion and home heating.

As a U.S.-owned and operated company, Solar Turbines is aware of the need to develop new technologies that will result in products that reduce our dependence upon foreign energy imports. This will be accomplished by tapping into our natural gas supply and increasing the infrastructure to accelerate the conversion to this more clean and efficient resource *and* to create high-paying jobs in the U.S. during the process. Of course, U.S. technological leadership in these areas will naturally translate into international sales of cooperatively developed efficient energy conversion products ahead of our foreign competitors, thus resulting in an improved balance of payments for the U.S. economy.

GOVERNMENT ASSISTANCE IN TECHNOLOGY DEVELOPMENT

The U.S. government's entry into industry-led partnerships for research, development and demonstration, has resulted in significant technology successes. Whenever the government has sought U.S.-owned industrial partners to cost-share in the development of new, comprehensive technologies, that selection has led to breakthrough products with the high risks and initial development costs jointly borne by the industry and the government. Historically, competing companies have benefitted from the efforts of the pathfinder industry leader and produced similar products, often improved upon, with a far smaller investment and without losing their place in the competitive cycle. The net result has been to continually elevate U.S. technology so that our nation competes more effectively in a worldwide market, getting to the customer first. Today's military and commercial jet aircraft engine is an example of industry/government partnerships. Similar examples can be found throughout the country where many manufacturing communities have competed for, and participated in, government programs which have produced improved products, more jobs and measured growth.

Through the industrial ATS program, the DOE has focused the resources of the entire Energy Conversion Industry on the development of ultra-high efficiency, low-emissions gas turbine systems. In past years, producers of industrial gas turbine power systems have introduced modest, incremental technological improvements in efficiencies and environmental quality, while focusing on high availability and durability standards to meet customer expectations. As a capital-intense industry, they have not had the investment resources necessary, nor the assistance of federal agencies (such as the Department of Defense aiding aero gas turbines) to institute the required large-scale improvements at a rate commensurate with our needs for energy and our desires for a cleaner environment. Broad-based consumer industries are also participating as cost-sharing demonstration sites. The results of this strategic program will change the energy buying criteria for the U.S. and the rest of the world.

The DOE has set into motion a number of cooperative programs with industry, in response to established national priorities, to significantly improve efficiencies and diversify fuel usage in an environmentally responsible way. These will provide for our energy requirements, while decreasing the amount and type of pollutants emitted to the atmosphere. By implementing the industrial ATS program, increases in thermal energy conversion efficiencies of over 15 percent can be obtained from first using clean natural gas, then biomass gas or coal-fuel gases to produce both industrial electrical power and process heat, while significantly reducing emissions. Additionally, industrial ATS provides an affordable solution for private industry, in cooperation with electric utilities, to restructure power generation technology toward the goal of distributed electrical power production.

Government plays a legitimate and proper role by setting the goals and objectives that will ensure that the long-term economic growth of the country is secure and well planned, our natural resources are conserved and consumed wisely, and the environment is protected. This government/private industry partnership contributes to the reshaping of America's global competitive future, providing domestically designed and produced, low-cost, environmentally benign power generating systems, supplying the energy our nation requires to remain a competitive industrial force in the global marketplace. Higher efficiencies in the power generation and automobile industries are excellent examples of the government's interest in preserving our natural resources. Another is the inclusion of environmental standards in new product development programs within the R&D sector. The key to our government's success is not to dabble in technology selection, but rather to stick to what it does best — that is national goal setting, leaving the technology selection and path to success in the hands of the industrial partner and technology pacesetter.

SCOPING THE PROBLEMS

Efficient Use of Industrial Fuel

Government (DOE/EIA) estimates of required new and repowered electrical generation capacity are 15 gigawatts annually after the year 2000. The products required to meet the increased demand for power will have to be highly efficient and environmentally clean. This new market will require products that have a life cycle of approximately 30 years. Products which meet the industrial ATS program goals will fulfill this requirement. Additionally, many older power generation sites are reaching the end of their life cycle and will need to be repowered with the same efficient and clean machinery.

The concept of distributed power generation is becoming accepted by major power producers due the problems created by transmission line limitations and losses, and the increasing tendency for power users to generate their own power "inside the fence." Without government's shared investment in technologies required for future power generation products, replacement equipment will not be able to meet the $1.9 billion/year fuel import reduction goals set forth by the DOE by the year 2000.

Export Revenue

Despite efforts to the contrary, the U.S. has been slowly increasing its dependence on imported oil. In 1973, for example, the U.S. imported 36 percent of the oil it consumed. In 1994, by contrast, this increased to 49 percent. The rise is expected to continue until the increased efficiencies promoted by the DOE industrial ATS program are realized as the newly developed technologies are placed. This annual rate of increase represents a drain on our balance of payments. With a growing demand for non-domestic petroleum products and the associated negative consequences, the U.S. could find itself in a position of being a debtor nation whose investments and, thus, credit ratings will diminish. The world's most advanced nation cannot afford to allow that to happen.

SOLVING THE PROBLEMS

National Energy Goals Realized

The DOE industrial ATS program is the first and only effort to create a purpose-designed and purpose-built industrial size (1-to-20 MW), fuel flexible energy conversion system that will meet both the user power generation requirements, and the U.S. government's cost, efficiency and emissions goals. Efforts to adapt other mature energy conversion technologies may work, but they will be created without the benefit of being designed by experts in the power generation field, and will not meet the user buying criterion of lowest life-cycle cost. The industrial ATS program offers the best solution for our national and user goals.

High-quality, High-paying Jobs in America

It is estimated that through the industrial ATS program, over 10,000 high-salary manufacturing engineering jobs will be created by the year 2010. Associated tax benefits for the government will be realized from salaries that are projected to be $90,000 annually for engineering personnel and $58,000 for mechanical technicians. Additionally, incentive programs for sales and production schedules would attract the best-qualified from among the workforce, assuring U.S. leadership in quality products. An example of such a program is the recently-paid $19 million in incentives to Solar Turbines employees, based upon the 1995 fiscal year financial performance of the company. Under ATS, and assuming incentive programs similar to Solar's, incentives could ultimately reach $58 million annually.

Export Revenue Increased

International trading is essential for the growth of this country. If the United States develops a product that meets the needs of people around the world, it is important that those products reach the global market before foreign competition swoops in with lower-quality look-alikes. Continuation of the investment by the Congress in the industrial ATS program will accelerate U.S. products into the international marketplace, leading to greater export revenue and a reduction in our country's balance of payments.

SUMMARY

Industrial ATS is a strategic national interest program. Our recommendation is to keep the industrial ATS program on schedule and to fund it as originally conceived, placing the U.S. government in a partnership position to support the Energy Conversion Industry's ability to meet national jobs, energy and environmental goals.

The industrial ATS program will support the Energy Conversion Industry in realizing its goals. In addition, once the technologies promoted within the program are proven, they can be exported to other countries whose environmental and resource-saving goals will be essentially the same as ours. This, in turn, creates more jobs in the gas turbine industry and the export opportunity will generate foreign revenues, reducing our trade imbalance.

This DOE-directed program provides the surest and swiftest path to high efficiency clean energy. Industry is fully committed to the program. Solar respectfully requests that the Committee fully fund the Office of Industrial Technology, Cogeneration/Advanced Systems budget.

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

MARCUS E. MILLING, EXECUTIVE DIRECTOR, AMERICAN GEOLOGICAL INSTITUTE

Mr. REGULA. American Geological Institute, Dr. Milling.

Dr. MILLING. Thank you, Congressman Regula. I'm Marcus Milling, the executive director of American Geological Institute. AGI is a nonprofit organization of some 29 geoscience professional and scientific associations that represent over 80,000 geologists, geophysicists, earth scientists across our country.

I appreciate the opportunity today to present AGI's testimony in support of appropriations for both the U.S. Geological Survey and the Department of Energy fossil energy programs. These geoscience agencies are facing the most serious budget challenge in their history, but the challenge comes even as the United States begins to recognize its increasing vulnerability to earthquakes, floods, drought, water pollution, reliance on unstable sources of flowing oil—all problems that really require improved geoscientific knowledge.

The central mission of the United States Geological Survey is to provide reliable, objective earth science data on hazards, natural resources, and the environment. Virtually every American citizen and every Federal, State, and local agency benefits either directly or indirectly from USGS products and services.

Looking at specific USGS programs, AGI urges this subcommittee to fund the National Cooperative Geologic Mapping Program and particularly the External StateMap and EdMap components that are matched by State and university dollars. Geological maps are fundamental data sources required for all land units, natural resource, and environmental assessment studies.

During the current Fiscal Year, the USGS is assuming new responsibilities formerly housed in the National Biological Service and the U.S. Bureau of Mines. If carefully managed, these new programs can significantly enhance the core responsibilities of the USGS.

The Bureau of Mines information function provides valuable national and world mineral resources that must not be lost. We really need to retain that capability. In addition, the integration of the National Biological Survey function provides a number of opportunities for more focused, interdisciplinary research at the Survey.

AGI believes that the $730 million provided for the USGS by Congress in Fiscal Year 1996 represents the minimum amount necessary to keep the Survey's operations viable. This is a modest investment, we believe, for the future of our Nation and our planet.

Let me turn now, next, to the Department of Energy's fossil energy program. In 1994, as you certainly appreciate, oil production in this country declined to its lowest level since 1946. For the second consecutive year, in 1995, the United States imported more than 50 percent of the total oil demand. Further decreases in domestic production will continue to negatively impact the trade deficit problem and increase foreign dependence on a source that is vital to the economic strength and national security of our Nation.

DOE's fossil energy program is making a significant contribution to the development of new recovery technologies required for cost-effective, efficient development of U.S. oil and gas fields. With the downsizing in this—I think this is critically important, though, too, because with the downsizing of the domestic oil and gas sector, the U.S. is losing its technological lead in the world, and the DOE R&D programs are helping us to counter that trend.

AGI requests that DOE fossil energy programs be funded at a level no less than $417 million provided by Congress for the Fiscal Year 1996. We particularly urge that funding support be maintained for several key programs. AGI is working with DOE and the private sector to leverage Federal dollars with industry contributions in order to establish a national geoscience data repository system for the use of industry, government, and the scientific research. The system will save billions of dollars worth of domestic geological and geophysical data that are in jeopardy of being irrevocably lost or destroyed as a consequence of downsizing the U.S. oil and gas industry.

Additionally, AGI supports DOE's efforts to accelerate the dissemination of new technology through the Petroleum Technology Transfer Council, so that more domestic petroleum can be produced and fewer producing fields be abandoned.

Finally, in closing, I'd like to point out that we do—AGI strongly does—support the integration of DOE's oil and gas programs with mining programs, which will result in important, improved efficiency and better reflects the way that research is really done.

I'd be pleased to answer any questions.

Mr. REGULA. Thank you very much.

Dr. MILLING. You bet.

[The statement of Dr. Milling follows:]

Statement by
Dr. Marcus E. Milling
of the American Geological Institute to the
Subcommittee on Interior and Related Agencies
Committee on Appropriations
U.S. House of Representatives
in support of Fiscal Year 1997 Appropriations for the
U.S. Geological Survey and the
Department of Energy Fossil Energy R&D Program

March 7, 1996

Mr. Chairman and Members of the Subcommittee:

Good afternoon. I am Dr. Marcus E. Milling, executive director of the American Geological Institute (AGI). I appreciate this opportunity to present AGI's testimony in support of fiscal year 1997 appropriations for the U.S. Geological Survey and the Department of Energy's Fossil Energy Research and Development Program. AGI also supports funding for geoscience research in other Interior agencies, particularly the Minerals Management Service.

AGI is a nonprofit federation of 29 geoscientific and professional associations that represent more than 80,000 geologists, geophysicists, and other earth scientists. In addition, 115 colleges and universities are AGI Academic Associates, and 30 private companies are AGI Corporate Members. Founded in 1948, AGI provides information services to geoscientists, serves as a voice for shared interests in our profession, plays a major role in strengthening geoscience education, and strives to increase public awareness of the vital role the geosciences play in mankind's use of resources and interaction with the environment.

Last year, geoscience agencies under this subcommittee's jurisdiction faced the most serious budgetary challenge in their history. This challenge came even as the United States began to recognize its increasing vulnerability to earthquakes, floods, droughts, water pollution, volcanic eruptions, global environmental change, contamination from waste disposal, and reliance on unstable sources of foreign oil and minerals. None of these problems can be confronted without continuing geoscientific input, as this subcommittee and Congress ultimately determined. Federal investments in the geosciences continue to pay back large dividends, and the rationale for continuing federal support remains strong. The national need for a federal role in the geosciences is based on a number of factors, most notably:

- The demand and competition for Earth's land, water, energy, and materials is continually increasing. Furthermore, the impact of natural hazards such as floods and earthquakes will increase as our population grows fastest in those areas most prone to such catastrophic events.

- Providing critical long-term data on natural resources and geologic hazards requires an integrated national effort. This information represents a fundamental public good required by the private sector and by government agencies at all levels as the basis for exploration, planning, environmental policy, and land-use decisions. The collection of this data must be coordinated and assessed at a national level to ensure that crucial needs are being met.

U.S. Geological Survey

The central mission of the Geological Survey (USGS) is to provide reliable, objective earth science data and analysis of hazards, resources, and the environment from a national perspective. Virtually every American citizen and virtually every federal, state, and local agency benefits either directly or indirectly from USGS products and services. The USGS is widely recognized for providing unbiased data used by others to better manage the nation's resources. It is to be commended for focusing on the needs of its customers and for developing partnerships to leverage federal dollars. As Chairman Regula wrote in the current issue of *Geotimes*, the Survey's "willingness and ability to respond to the changing needs of society may have been the single most significant factor in helping it survive in the current budget climate." AGI also supports the Survey's emphasis on conducting strategic science, identifying specific projects that have broad applicability to national problems.

The major earthquake that devastated Kobe, Japan in 1995 is a powerful reminder of the need for reducing the impact of geologic hazards. In order to be successful, the federal government's increased mitigation efforts must include a strong component of research into these hazards. The societal benefits and returns on investment of geoscience R&D on earthquakes and other geologic hazards extend to such areas as housing, transportation, commerce, agriculture, communications, and human health and safety.

The past year has seen a large number of severe floods -- in the Pacific Northwest, the Northeast, and the Gulf Coast. The USGS provides streamflow information that is the basis for flood forecasts by the National Weather Service and emergency response planning by federal, state, and local agencies. This information is collected through the USGS Federal-State Cooperative Program, a partnership with over 1100 state and local agencies that cost-share the data collection which the USGS then makes available to all potential users. This program should receive funding adequate to maintain historical levels of service and support modernization.

The health of the nation's water resources is another prominent national concern. Depletion of surface-water and ground-water supplies has reached significant proportions in some regions, and contamination is a problem in many communities. As the primary source of data on the nation's water resources, the USGS monitors ground- and surface-water contamination and other threats to our water supplies, contributing to the remarkable levels of public health enjoyed by all Americans.

Geologic maps are a fundamental data source for all of the USGS missions, and AGI hopes that the current efforts in Congress to reauthorize the National Cooperative Geologic Mapping Act will be successful. AGI urges this subcommittee to fund this program and particularly the external StateMap and EdMap components that are matched by state and university dollars. Although AGI is generally supportive of the use of contracting for map production and other services where the private sector can do a better job, we are concerned that cost and quality be considered in any calls for an increase in contracting of the mapping functions in the USGS and other Interior agencies.

During the current fiscal year, the USGS is assuming new responsibilities formerly housed in the National Biological Service (NBS) and U.S. Bureau of Mines (USBM). If carefully managed, these new responsiblities can significantly enhance the core responsibilities of the USGS. The USBM mineral information function provides valuable information on national and world mineral resources that must not be lost. The integration of the NBS functions provide a number of opportunities for focused interdisciplinary research in areas such as South Florida and San Francisco Bay. The highly successful National Water Quality Assessment (NAWQA) program already collects both hydrologic and biologic data for our nation's watersheds. In order to address the merger issue, AGI convened a workshop of key scientific and professional societies in the geosciences and life sciences that are affected by the merger of NBS and USGS. We hope to issue a consensus report in mid-April that will be helpful to both the Department of the Interior and to Congress in implementing this merger.

The USGS needs the resources and flexibility to address an evolving mission and adapt to changing national priorities. AGI believes that the $730.5 million provided for the USGS by Congress in Conference Report 104-402 for fiscal year 1996 represents the minimum amount necessary to keep the Survey's operations viable. This is a modest investment in the future of our nation and our planet. If we do not successfully maintain our federal investment in the USGS, we run the risk of more costly tragedies that will increase the federal deficit.

DOE Fossil Energy Research and Development

In 1994, domestic oil production declined to its lowest level since 1946. For the second consecutive year, the United States has imported more than 50 percent of its total oil demand. Imported oil accounted for about 31 percent of the merchandise trade deficit in 1994. Further decreases in domestic production will exacerbate the trade deficit problem and increase foreign dependence on a resource that is vital to the economic strength and national security of the nation. While research on renewable resources and energy efficiency is critical to America's future, continued research on fossil energy is no less important. The societal benefits of fossil energy R&D extend to such areas as economic and national security, job creation, capital investment, and reduction of the trade deficit.

DOE's Fossil Energy R&D program is making a significant contribution to development of new technologies required for cost-effective, efficient development of U.S. oil and gas resources. Reductions in the program would adversely affect the domestic oil and gas industry, particularly small independent producers, and would not be in the best interests of the nation. The federal money spent on these programs goes to support laboratories and improve information dissemination. This money does not go into corporate coffers, but it will help American businesses stay in business by giving them a technological edge over their foreign competitors.

AGI supports the integration of the oil and gas programs as has long been done in industry. Combining these programs will result in improved efficiency and better reflects the way that the researchers work. AGI requests that the DOE Fossil Energy programs be funded at a level no lower than the $417.2 million provided for in Conference Report 104-402 for fiscal year 1996. These funds are a small fraction of DOE's total budget, but they represent an important investment in America's future. We particularly urge that funding should be maintained for the following key components:

- **Computational Technology Forum**. This program provides a strong link for joint development of advanced technology among the private sector, national laboratories, and universities to enhance the competitiveness of the domestic natural gas and oil industry and by doing so address the nation's oil and gas supply needs. Funds for this program go exclusively to our national labs and universities, and they are leveraged by matching funds from industry.

- **Geoscience Data Repository System**. Domestic geological and geophysical data are critical to the energy security and economic prosperity of the United States. A consequence of the ongoing downsizing of the U.S. oil and gas industry is that billions of dollars worth of domestic geological and geophysical data are in jeopardy of being irrevocably lost or destroyed. According to many independent oil producers, a national geoscience data repository system would enable them to expand their search for and development of domestic oil and gas resources. AGI is working with DOE and the private sector to leverage federal dollars with industry contributions in order to establish a national geoscience data repository system for the use of industry, government, and the scientific research community.

- **Technology Transfer**. The historic symbiotic relationship between major oil companies and independent producers has largely disappeared, and independent producers do not have access to existing and emerging advanced exploration, reservoir management, and production technologies. AGI supports DOE's efforts to accelerate the dissemination of these technologies through the Petroleum Technology Transfer Council and other mechanisms so that more domestic petroleum can be produced, and fewer producing fields are abandoned.

- **Functions from the U.S. Bureau of Mines**. Several of the functions of the former U.S. Bureau of Mines (USBM) were transferred to the DOE fossil energy budget in fiscal year 1996, specifically health and safety research and the materials partnership program. If those functions are to remain with DOE, it is important that they receive adequate support. The health and safety research of the USBM has been very effective in improving quality of life for thousands of American miners and its activities must be continued in the future. These functions should be receive no less than the $40 million provided in Conference Report 104-402.

AGI appreciates this opportunity to present our views to the subcommittee. We would be pleased to answer any questions or to provide additional information for the record.

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

STEVEN K. FREEBURNE, DOW CORNING CORPORATION

Mr. REGULA. Mr. Freeburne, if you can do it in three minutes, because I've got a vote and I've got less than 10 minutes left.

Mr. FREEBURNE. I'll make this very brief then.

Mr. REGULA. Okay.

Mr. FREEBURNE. I appreciate your giving me the opportunity to come.

I'm a manager of silicone and science and technology for Dow Corning Corporation, and I'm really here to ask you to support a particular program that has been funded by the Department of Energy since 1991. We are working on a new way to produce silicones that we think could make the silicone industry in the United States much more competitive as compared to the global situation. We believe that this would be a way to leverage tax dollars, to increase revenues, both tax revenues and also reduce the Federal deficit.

This technology that we're working on, which we have had successes only recently, we are running a process development unit right now. We're gathering data that would collect and allow us to scale up to the next commercial scale. If this technology is successfully commercialized, it would save silicone producers in the United States over $100 million a year.

Mr. REGULA. Is the technology in mining?

Mr. FREEBURNE. No, it's actually natural gas and turning it into a valuable intermediate that we can then turn into a finished product that ends up in caulking things and building materials, sealants, and that sort of thing.

Mr. REGULA. Do you do molecular alteration?

Mr. FREEBURNE. We start with natural gas and turn it into something that is a valuable intermediate, which is one of the things that distinguishes this program from a lot of other things that require——

Mr. REGULA. You're using a Federal grant to do this?

Mr. FREEBURNE. We're using $6 million. That's what we're asking for in Fiscal Year 1997.

Mr. REGULA. How much of your company's money is involved?

Mr. FREEBURNE. The $6 million represents 38 percent of the total cost. So we've got private money here as well. It's leveraged against that.

Mr. REGULA. You have a lot of faith in the program?

Mr. FREEBURNE. We have a lot of faith in it, but it is very high-risk sort of technology development, and that's why we're asking the government to help us. It is very difficult to take natural gas and turn it into something that's valuable. So that's kind of the essence of really what we're doing.

Mr. REGULA. Do you have to alter the molecular structure of the gas?

Mr. FREEBURNE. We certainly do. You have to take natural gas and you have to add another molecule to it, but the interesting thing is you have to stop after one addition. It's kind of like jumping off of a hill and stopping halfway down. You can't add two. If you add two things to it, it's no good. So we have to start it, get it added, and then stop it.

Mr. REGULA. And then?

Mr. FREEBURNE. And then we use it to turn it into intermediates such as sealants or building construction materials, and that's why it has such a big opportunity. We're talking about $100 million of savings here in the U.S. If we, as the U.S. silicone industry, could do this in terms of our competition against the Japanese, the French, or the Germans, they would all be coming and screaming and saying, "We want this technology," and we could actually become a source of export to a much greater extent than we presently are.

Mr. REGULA. So you make the natural gas into a base material.

Mr. FREEBURNE. Into an intermediate chemical that we then turn into a silicone.

Mr. REGULA. And you market that chemical to other companies?

Mr. FREEBURNE. We use the intermediate by itself. Now the reason the DOE is interested in this is because this material that we make from the natural gas can then be made into gasoline, and that's how we initially got the interest of the DOE, is because they in their gas-to-liquids program are interested in finding a way to go from——

Mr. REGULA. Will a gallon of gasoline be as cheap as the one from a barrel of oil?

Mr. FREEBURNE. It would be pretty close with this particular technology, yes, and that's another interesting difference between a lot of programs where you are taking natural gas and trying to make fuels out of it.

Mr. REGULA. Thank you.

Mr. FREEBURNE. Okay.

Mr. REGULA. That's very interesting, and I'll be right back.

Mr. FREEBURNE. Thank you very much.

[The statement of Mr. Freeburne follows:]

Written Statement of Mr. Steven K. Freeburne
Manager Silicon and Methyl Intermediates Science & Technology
Dow Corning Corporation
Carrollton, KY 41008

Submitted before the Committee on Appropriations
Interior Subcommittee
U.S. House of Representatives
March 7, 1996

Thank you, Mr. Chairman, for the opportunity to present my remarks before your subcommittee. My name is Steve Freeburne and I am the Manager responsible for Science and Technology of Dow Corning Corporation's global basic silicone processes. Government officials and industry leaders agree that our national debt and tax burden need to be reduced significantly if we expect to continue our position in the global economy. As the Congress addresses this issue, I want to provide information I hope is useful for this task, especially as you address a portion of the Department of Energy budget. For the remainder of my presentation I am building off the premise that technology has provided the engine powering the long term growth of the U.S. economy. I would like to focus on the U.S. Chemical industry to explain why I think cooperation between government and industry is an essential element in a strategy to balance the budget while improving the standard of living within the U.S. economy.

The chemical industry is a wealth generating segment of the U.S. economy that converts naturally occurring raw materials to value added products for consumers and industry. Raw materials processed into the basic building blocks of chemical products are found in consumer goods, serve other industries, and are exported to foreign markets.

If the U.S. chemical industry is to remain competitive it must be able to overcome the financial risk associated with long term revolutionary R&D. Lower profitability, downsizing and market pressure have forced redeployment of resources to address critical short term needs. Increased cost associated with regulatory compliance have reduced capital productivity and required increased resourcing from the industry's talent pool. The U.S. cannot afford to lose its competitive edge in environmental, material, and process technologies if it expects to remain a global leader in the future. Cost sharing process R&D in the chemical industry is one way government can augment shortages in critical areas of R&D and ensure the competitive success of the U.S. chemical industry.

Some examples from the most recent Chemical Manufacturers Association statistics (1993) show:

- Chemicals are a $1.3 trillion global industry.
- The U.S. chemical industry accounted for about 23 percent of global business in 1993.

- The U.S. chemical industry is the world's largest, followed by Japan, Germany and France.
- The U.S. chemical industry produces about 1.8 percent of the total U.S. GDP and 10 percent of all U.S. manufacturing with 1993 sales in excess of $300 billion.
- In 1993 the U.S. chemical industry had a trade surplus of $16.6 billion and total exports of $45.1 billion.
- The U.S. chemical industry employs 1.1 million people, or 5.9 percent of total U.S. manufacturing.
- Over 89,000 scientists, engineers, and technicians are working to advance frontiers in science through research and development projects in the chemical industry.
- About 53 percent of the work force are production workers whose average wage exceeded U.S. manufacturing as a whole by 26 percent.

These statistics would indicate the U.S. chemical industry is very healthy and robust, however, other indicators are not as rosy. Net income of $15.4 billion in 1993 remained 37 % below the 1989 peak of $24.5 billion. Capital productivity (capacity/net capital stocks) has fallen 73 percent since 1970 and is a reflection of rising costs of construction and pollution control. World trade in chemicals has been growing at about a 10 percent rate from 1983 to 1993, however, the U.S. chemical industry ranked only seventh in real growth output in the same period. Japan, the world's second largest chemical producer led with a real growth rate of 56 percent. These downward trends should serve as warning that the U.S. industry must strive to prevent future erosion of its lead position in today's global economy. Recent trends show improved profitability which can be attributed to a high level of economic activity, higher price, higher production and increased productivity, but global competitiveness remains a concern. Downsizing has been undertaken by many chemical companies to improve their competitive position in the short term. These efforts may lead to short term gains, but private underinvestment in R&D will result in shortfalls for developing new process and product technologies. The long term shortfalls will threaten U.S. competitiveness in global markets. The chemical industry is a major provider of enabling technology that supplies other industries with the critical materials needed to produce high technology devices.

According to the Census Bureau, the chemical industry paid almost $6 billion in income taxes in 1993 which represents 27 percent of the industry's pretax income. Income taxes from 1987-1991 averaged about $9 billion reflecting the trend in profitability of the industry. This decrease in global competitiveness translates directly to decreased living standards among domestic workers, decreased tax revenue and a weaker domestic industry. Personal tax revenue from worker's income, sales, property, etc., taxes probably topped $12.0 billion. The U.S. chemical industry is a vital asset to the U.S. economy and must remain healthy in future global markets if it is to continue to provide for the well being of the nation. Government can be an essential partner in maintaining and enhancing our competitive position. Income revenue to industry directly translates to tax revenue that is necessary to sustain government. A healthy economy with high productivity and the ability to compete globally is the win-win scenario that can provide deficit reduction while improving our standard of living.

Process demonstration is a critical commercialization phase where science is transformed into technology and a full assessment of benefits can be measured. It also has the highest risk since it is generally the first evaluation made for the commercial viability of a process which includes evaluation of costs and process efficiency, and is normally performed on large scale expensive equipment. I am here to urge your continued funding and support for demonstration projects in general, more specifically I am encouraging your support for Research and Development projects in the U.S. Department of Energy's Offices of Oil and Gas and Industrial Technologies.

I would like to discuss a specific example which will illustrate how government funding of industrial research and technology development is important to our common interests. Dow Corning Corporation is a major industrial corporation with its headquarters located in Midland, Michigan. We have been developing a new commercial route to silicones under a project that is partially funded by the U.S. Department of Energy and the Gas Research Institute. Our primary interest in developing this technology is for manufacturing silicones, however, the fundamental knowledge being developed can be applied to converting methane to gasoline, production of intermediates for high performance materials such as Teflon® and a host of other value added materials. DoE is interested in this technology because it will advance a gas to liquids process that could improve our energy security. Research results have encouraged Dow Corning to pursue Phase II of the project which is part of the Gas to Liquids Program managed by the Pittsburgh Energy Technology Center (PETC). Dow Corning originally proposed a two phase project to commercialize a new process known as oxyhydrochlorination (OHC) to manufacture one of our basic intermediates (methylchloride) directly from methane. We developed a selective catalyst and constructed a process development unit to define scale-up factors since work on Phase I started in October, 1991. We anticipate a start-up of Phase II in the third quarter of 1996. Risk sharing through government funding has been critical to our commercialization strategy throughout this research project. The Gas Research Institute also supports this project because it could provide a new commercial route to value added products based on natural gas.

Phase II will demonstrate the commercial viability of the OHC process which will enhance the global competitiveness of our domestic industry. We believe this technology has the potential for saving about $100 million/year in the silicone industry and similar savings in other industries if we are successful. The payoff will be in increased profit for industry, reliable tax revenue for Government, and high paying jobs for our citizenry. Broad based benefits include:

- Reduction in the U.S. methanol trade deficit by 30%, saving up to $574 million.
- Reducing reliance on foreign methanol while providing a reliable domestic source of MeCl .
- Improved U.S. competitiveness in global markets.

- Providing an alternate route to liquid hydrocarbon fuels from natural gas.
- Development of technology to reduce Volatile Organic Compounds (VOC) emissions.

We have become aware that funding for the Gas to Liquids program may be eliminated or severely reduced in the FY97 budget and that the Department of Energy may not be able to support this project. I am here today to urge you to provide adequate funding in DoE's Gas to Liquids program to support Phase II of the OHC process development effort. We anticipate Phase II will have a total cost of about $16 million over a 5 year period. DoE's cost share target is $6,000,000 or about 38 % of the total cost. Phase II will start in 1996 and be completed in 2000. Lack of funding will severely limit progress toward implementation of this technology and jeopardize the early completion of Phase II. Technology Transfer to other industries would also be impossible without funding.

New technology innovation will be essential for American industry to remain globally competitive. This program is one example how government and industry can invest in research projects that will strengthen our technology base, improve our global competitiveness, and enhance our industrial infrastructure. Dow Corning's program focus is to produce methylchloride for the production of silicones, however, this technology can be applied to manufacturing a host of intermediates with broad base industrial value.

Successful commercialization that enhances our competitiveness is also in the government's interest. We estimate that every dollar profit from the U.S. chemical industry provides between $1-2 of tax revenue for local, state, and federal governments. This revenue stream includes federal and state income taxes from industry and its workers, property taxes, FICA taxes, and taxes paid on dividends to name a few. A robust domestic economy with leading edge technology could contribute significantly to the reduction of our balanced budget problem by reducing high unemployment entitlements while providing solid revenue streams. The U.S. must reverse trends that indicate our global position in manufacturing is eroding. Partnerships between industry and government is one path to a win-win solution to our economic woes.

Thank you for your attention and I would be glad to answer any questions..

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

ALFRED G. COMOLLI, HYDROCARBON TECHNOLOGIES

Mr. REGULA. Alfred Comolli, Hydrocarbon Technologies. Thank you for coming. We'd appreciate your summarizing as much as you can.

Mr. COMOLLI. I will do that.

I just want to say I support the arts and humanities, but they cannot exist or strive without industry. I'm here to talk about a new industry, and that is the liquefaction and co-liquefaction of waste plastics and other municipal wastes.

Mr. REGULA. Liquify them into what, hydrocarbons?

Mr. COMOLLI. Yes, take all the hydrocarbons, all the organics, liquefy them to produce fuels and chemicals.

Mr. REGULA. Why would we support that?

Mr. COMOLLI. It's a technology—it's a new industry. It's an industry that can take waste materials, which have a high hydrogen-to-carbon ratio, and utilize that hydrogen content and the carbon content to recycle and produce fuels and chemicals.

Mr. REGULA. I know that——

Mr. COMOLLI. It's taking a second and third look at these materials.

Mr. REGULA. Rubbermaid in my district recycles plastic material and makes a new plastic material out of it. It's somewhat, I guess, what you're talking about.

Mr. COMOLLI. Part of this can go directly back into plastics.

Mr. REGULA. What are the economics of it?

Mr. COMOLLI. The economics are very attractive today. With the plastics coming in at zero tipping fee, we're talking about $16 a barrel. And the national tipping fee right now is $26 a barrel for waste landfills and for incinerators it's $56 a barrel. So it looks very attractive.

And the benefit of it is that the wastes have a high hydrogen content, so you don't have to buy hydrogen, which is one of the most expensive materials for liquefaction.

Mr. REGULA. Can this be done ultimately onsite where the waste would come into a central location and be sorted out, and then whatever is usable to do this would go into a stream?

Mr. COMOLLI. We're locating this next to a refinery——

Mr. REGULA. Oh.

Mr. COMOLLI [continuing]. Which has the infrastructure to do the distillations and complete the finished products. We're looking at, like, 35 to 100 plants throughout the country in population centers, two of them, for example, in Ohio, one in north Ohio and down south.

Mr. REGULA. Next to some or near a refinery?

Mr. COMOLLI. Near a refinery.

Mr. REGULA. And what kind of waste would come out of this stream?

Mr. COMOLLI. All the random plastic and organic waste. As long as it has organics, as long as it's carbon, hydrogen, oxygen structure, we can convert it.

Mr. REGULA. What do you do, cook it?

Mr. COMOLLI. We reduce it with hydrogen. We take hydrogen and bring it up to high temperatures and crack it into a base molecular structure and then add hydrogen to it. So by doing that, we also remove all the sulfur, all the chlorine, all the nitrogen——

Mr. REGULA. As a waste——

Mr. COMOLLI. As byproduct streams.

Mr. REGULA. Oh.

Mr. COMOLLI. The nitrogen becomes ammonia; the sulfur becomes elemental sulfur; the chlorine becomes——

Mr. REGULA. How far along is this thing now?

Mr. COMOLLI. That's what I'm here to talk about.

Mr. REGULA. Okay.

Mr. COMOLLI. We're in a small stage and we need $3.5 million a year to——

Mr. REGULA. "We" meaning a company?

Mr. COMOLLI. The alliance of Hydrocarbon Technologies, the University Consortium for Fossil Fuel Liquefaction——

Mr. REGULA. Is this alliance made up of industries that produce these wastes?

Mr. COMOLLI. We hope, with this $3.5 million, to do a proof-of-concept run, which will then bring in private industry.

Mr. REGULA. This is a whole new project then?

Mr. COMOLLI. Yes, it is. It is. It looks very promising and we're very excited about it.

Mr. REGULA. Oh, I see. Staff tells me we've been doing research.

Mr. COMOLLI. Right.

Mr. REGULA. You're talking about the demonstration phase?

Mr. COMOLLI. Yes. I'm talking about the proof-of-concept level. The next stage would be the demonstration level, and that's where private industry comes in.

Mr. REGULA. Would there be matching funds from the private sector?

Mr. COMOLLI. Absolutely. I hope it can be more than half funded by private industry.

Mr. REGULA. Well, we'll take a good look at it.

Mr. COMOLLI. So you supported this in 1996, and if you could continue that support in 1997, we'd certainly appreciate it.

Mr. REGULA. But you're going to the next level in—it would be in the 1997, if it's 1996 and you're still in the research mode——

Mr. COMOLLI. Yes.

Mr. REGULA. Now this will go to the commercialization?

Mr. COMOLLI. Yes.

Mr. REGULA. Where is this facility where you do this?

Mr. COMOLLI. We're located in Lawrenceville, New Jersey, and we're the largest direct liquefaction facility in the country. We have 56 employees dedicated to this project. We're a brand-new company and owned by the employees.

Mr. REGULA. Very, very interesting. Okay, well, thanks for coming——

Mr. COMOLLI. Thank you.

Mr. REGULA [continuing]. And bringing this to our attention.

[The statement of Mr. Comolli follows:]

ALFRED G. COMOLLI, PRESIDENT
HYDROCARBON TECHNOLOGIES, INC.
LAWRENCEVILLE, NEW JERSEY
MARCH 7, 1996

House Appropriations Sub-Committee
on Interior and Related Agencies
The Honorable Ralph Regula, Chairman

TESTIMONY ON DIRECT LIQUEFACTION AND CO-LIQUEFACTION OF WASTE PLASTICS AND OTHER MUNICIPAL WASTE

Forward

My testimony today addresses the Department of Energy's (DOE) Fossil Energy Research and Development appropriations and the need to add funds for the direct liquefaction and recycling of plastic and organic wastes with coal. Hydrocarbon Technologies, Inc. a small U.S. employee owned business, thanks the sub-committee for their staunch support of this program in the 1996 budget and asks the sub-committee to again examine the role direct liquefaction can play in helping to solve our waste disposal problems in an environmentally responsible and energy efficient manner. We ask for your support in the continued development and demonstration of this new U.S. technology under the DOE Fossil Energy Program. Our request is for an appropriation and allocation of $3.5 million in fiscal 1997 to HTI for the Research, Development and Proof of Concept co-liquefaction and recycle of waste from plastic, tire, automotive and municipal sources co-mingled with coal and heavy oils. This four (4) year program includes an alliance of Hydrocarbon Technologies with the University Consortium for Fossil Fuel Liquefaction Science (Universities of Auburn; Kentucky, Pittsburgh, Utah and West Virginia). Pittsburgh Energy Technology Center (PETC) and private industry sponsors with appropriate AR & ET funding for the University participants.

To obtain private industry participation and verify the projections for Direct Liquefaction; Proof of Concept demonstrations at the 4-5 ton per day scale are needed, commercial design data can be collected, large amounts of product can be made for market evaluation and scale-up of equipment and operation can be proven. Program costs for a POC Program are about $3.5 mm/per year.

Scientists at Hydrocarbon Technologies, Inc., The Consortium for Fossil Fuel Liquefaction Science (CFFLS), PETC, Mitre and Consol are very excited about the environmental and economic prospects of this new program and its implications for the effective and energy efficient recycling of random wastes and believe it is vital to the stability of our nation. Turning one industries waste into anothers raw materials is the key to a better environment.

Background

Through the efforts of Hydrocarbon Technologies, Inc., the U.S. Department of Energy at the Pittsburgh Energy Technology Center and the Consortium for Fossil Fuel Liquefaction Science (CFFLS), a new and promising application for direct liquefaction has been found: The combined recycling of random waste plastics and waste hydrocarbons with coal to produce clean transportation fuels and to recover the starting chemicals used for production of new plastics. This program will develop an environmentally friendly processes to:

- Direct organic waste away from landfills
- Produce valuable products, basic and intermediate chemicals, and fuels
- Solve existing environmental problems created by current disposal methods
- Reduce refinery waste oil pond and landfill inventories
- Enhance domestic resources
    - Supplant oil and fuel supply imports
    - Reduce energy consumption through recycling
    - Improve the trade balance
    - Create a new industry and U.S. jobs

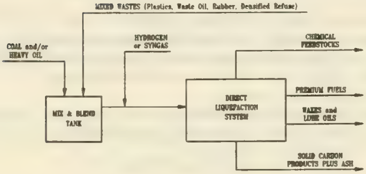
Approximately 25 million tons of plastic waste amounting to an estimate of about ½lb per person per day are generated in this country, are discarded after use and end up in incinerators and landfills or are reused or recycled. With today's existing methods only 4% of the plastics are recycled or reused. Waste plastics occupy about 11% by weight and 21% by volume of U.S. landfills. In the last decade, about 40% of the 3,500 U.S. landfills were filled and closed and the 3,500 remaining ones are expected to be filled by the end of the century. Landfills are no longer a satisfactory means for the disposal of valuable plastic waste and such disposal is a serious environmental concern both for ground and air pollution.

None of the current options for disposal of random plastic wastes appears to be economically viable nor environmentally responsive. Recycling of individual plastics is projected to average only 5% of the waste stream by 2004. However, recent work, sponsored by the United States Department of Energy, indicates that the application of direct liquefaction is a solution for waste disposal in that the separation of wastes by resin type is not required. All the feed is converted to basic petrochemicals which can be used to generate transportation fuels and feedstocks for the production of virgin plastics in an environmentally safe and benign and cost competitive manner.

Process

Direct Liquefaction is a liquid phase hydrogenation process that takes place at temperatures of about 800°F and pressures of 2,000 psig. Under these conditions, large molecules are cracked, hydrogen is added and sulfur, nitrogen, and chlorine, etc. are easily separated and recovered after conversion to their basic hydrogenated form. Also, because the process is contained under pressure, all gases and inert components can be captured and reused if desired. Additionally, direct co-liquefaction is very energy efficient, with efficiencies of greater than 85%. A diagram of the new technology for coal/waste liquefaction is shown below.

NEW TECHNOLOGY
COAL/WASTE LIQUEFACTION


MIXED WASTES (Plastics, Waste Oil, Rubber, Densified Refuse)
COAL and/or HEAVY OIL
HYDROGEN or SYNGAS
MIX & BLEND TANK
DIRECT LIQUEFACTION SYSTEM
CHEMICAL FEEDSTOCKS
PREMIUM FUELS
WAXES and LUBE OILS
SOLID CARBON PRODUCTS PLUS ASH

Rationale

On a conversion to transportation fuel basis the recycle and conversion of waste plastics, waste oils, tires and organic wastes with only 50% of the waste being recovered shows that this process can supplement 10% of our daily transportation fuel requirements (Table 1):

TABLE 1

HYDROCARBON-BASED WASTE MATERIALS GENERATED IN THE UNITED STATES

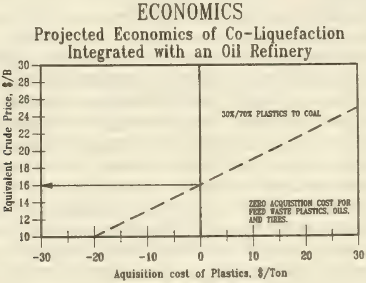
Waste Type	Quantity Per Year	Oil Equivalent Million Barrels/Year
Plastics	3.5 Million Tons	200
Used Waste Oil	1.4 Billion Gallons	33
Rubber Tires	350 Million PTE* 34.4 Million	8
Other Organic	Tons	212
Total		453
Total with Coal (1:1)		806
Total at 50% Waste Recovery		453+

* Passenger Tire Equivalents

+ About 10% of daily U.S. Transportation Fuel Use

ECONOMICS

A techno-economic analysis for a site specific waste/coal direct liquefaction plant at 10,000 bbls/day adjacent to and integrated with an oil refinery with random waste delivered to the plant shows an average required selling price at zero acquisition cost and at 15% ROI of about $16.00 per barrel. If tipping fees are included and if high value plastic feedstocks are recovered, the price could be less than $14/bbl and is cost effective today. This selling price will be in the competitive range by the end of this century, even with a + $20/ton acquisition cost, particularly if the environmental cost benefits of recycling are included. The current national average tipping fee is $28/ton for landfilling and $54/ton for incineration.



ECONOMICS

Projected Economics of Co-Liquefaction Integrated with an Oil Refinery

SUMMARY

Commercialization of waste recycling/co-processing technologies not only supplements the U.S. energy supplies, but also mitigates the environmental problems associated with currently practiced modes of waste disposal, creates a new industry and jobs, narrows the trade gap and advances the direct liquefaction technology. Recycling through direct liquefaction turns waste into fuels and raw materials for our economy.

In order to maintain the United States' competitive edge in direct coal liquefaction and waste recycling, it is essential that the U.S. government continue supporting the development and demonstration of this versatile technology. We must awaken to the realities of world energy needs and our enormous waste disposal problems. Direct liquefaction can assist in the solution of our waste disposal problems and reduce our need to import energy. Let us continue to lead the world in the application of direct liquefaction technologies and push for a commercial demonstration at 10,000 barrels per day by the turn of the century.

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

KIRK BROWN, THE BUSINESS COUNCIL FOR A SUSTAINABLE ENERGY FUTURE

Mr. REGULA The Business Council for a Sustainable Energy Future, Mr. Brown.

Mr. BROWN. Thank you, Mr. Chairman. I know it's late, so I'll be as brief as possible.

Mr. REGULA. We'd appreciate it if you can be.

Mr. BROWN. The Business Council is comprised of a diverse group of companies ranging in size from Fortune 500 enterprises to small entrepreneurial firms, and we support energy-related policies and programs that promote the Nation's economic and national security goals through the clean, safe energy technologies.

The council believes that energy efficiency programs in the Department of Energy are crucial to achieving these goals. Virtually every President, every administration from President Nixon to the present, has made energy efficiency a key component of its national energy program. Because of energy efficiencies, there are many societal benefits. These include creating jobs, improving our world trade competitiveness, enhancing our national economic security, and reducing pollution resulting from energy production and use.

I'd like to briefly touch on a few of the programs at DOE, the efficiency programs, that illustrate their effectiveness. DOE is working with the private sector in developing new vehicle technologies that will reduce our pollution and significantly reduce the transportation sector's reliance on imported oil.

Mr. REGULA. Where's your organization play—what role do they play?

Mr. BROWN. The council's as a whole?

Mr. REGULA. Yes. You represent them, I assume?

Mr. BROWN. Right. Yes, we serve as an advocacy organization. We're a coalition of companies from the gas renewables and efficiency industries, and we just serve to bring together their voices.

Mr. REGULA. It would be an advocacy with DOE as well as with us; is that right?

Mr. BROWN. That's right, and in terms of DOE's priorities in constructing its programs in-house and with the Congress, too.

With the Congress, of course, we're looking at the shrinking discretionary dollars. And as this subcommittee arranges its priorities, we'd like to throw out some key problems we think deserve some attention.

Mr. REGULA. You've outlined those in your statement?

Mr. BROWN. Right, in the testimony that we submitted, yes.

Mr. REGULA. We will be reviewing that.

Mr. BROWN. Right, in greater detail in those.

Generally speaking, I'd say DOE has some exciting programs in battery technologies and alternatively-fueled vehicles. It's got some voluntary programs in its Clean Cities Program and its climatewise programs, where it brings together partners from the public and private sectors to promote efficiency programs. It's also working to promote some gas cooling technologies and to validate their efficiency and quality of product.

I'd like to speak briefly about the standards in insulation activities at DOE. DOE has provided a good role in providing educational and technical support as far as the Model Energy Code is concerned and ASHRAE 90.1. We support the work that they're doing in those areas. They've also recently published some industrial insulation guidelines that it is helping to implement by providing educational and technical support.

One last area I'd like to address with you specifically would be the Federal Energy Management Program. As you know, DOE, the program is spending over $3 billion a year to light, heat, and cool its buildings. There are many opportunities to update or retrofit these buildings to make them more energy-efficient. In particular, if the Federal Government was nearing the private sector's use of energy performance service contracting, it could significantly reduce its energy use while minimizing the upfront costs for making the buildings more efficient. We believe every agency of the Federal Government should be using these contracts, and the Department of Energy, through its program, can help them do that.

So, in sum, these energy-efficiency activities reflect the broad diversity of this diverse energy-efficiency industry. Based on the benefits of those programs, the Federal Government has a long history of supporting these programs, and we think they reduce market distortions and are based on sound market theories. So we hope you can support them.

Mr. REGULA. Okay, thank you.

[The statement of Mr. Brown follows:]

THE BUSINESS COUNCIL FOR A SUSTAINABLE ENERGY FUTURE

TESTIMONY:
HOUSE APPROPRIATIONS COMMITTEE,
INTERIOR SUBCOMMITTEE

CONCERNING:
FY 1997 BUDGET APPROPRIATIONS FOR ENERGY EFFICIENCY PROGRAMS
AT THE DEPARTMENT OF ENERGY

MARCH 7, 1996

INTRODUCTION

The Business Council for a Sustainable Energy Future is pleased to offer its views on the role of government in support of energy research and development -- as it relates to energy efficiency programs at the Department of Energy (DOE).

The Business Council for a Sustainable Energy Future is comprised of a diverse group of companies. Our members represent manufacturers, energy producers, suppliers, and energy service companies. Our diversity is also reflected in the size of our member companies. We have Fortune 500 enterprises and small entrepreneurial businesses as members. The Business Council supports energy related policies and programs that enhance the nation's economic and national security goals through the rapid deployment of efficient, non- and low-polluting energy technologies.

ENERGY EFFICIENCY -- BACKGROUND

Energy efficiency is an often misunderstood concept. Perhaps this is the situation because the term came into wide national usage during the 1973 oil embargo, when long lines at the gasoline station and personal sacrifice were commonplace. During this crisis, doing without often was equated with energy conservation, and energy conservation was viewed as part of the solution for dealing with the energy crisis.

After the panic of the embargo subsided, we began to focus on the real nature of energy efficiency. First, we learned that using energy efficiently does not inherently require sacrifice, rather, it may simply require changing how we approach energy use.

Second, we became even more aware that energy often is used inefficiently. That is, many cost-effective investments that save energy are overlooked or ignored. This market failure can be traced to a number of market imperfections, such as lack of information, buyer/user disconnect, and hidden or inaccurate price signals.

Third, we discovered that replacing old technologies with new energy-efficient technologies has societal benefits: it creates jobs, improves US competitiveness, enhances the nation's economic security, and reduces pollution resulting from energy production and use.

These discoveries led virtually every administration from President Nixon to President Clinton to feature prominently programs that promote energy efficiency as a key component in their National Energy Strategy.

ENERGY EFFICIENCY PROGRAMS AT THE DEPARTMENT OF ENERGY

The federal government's energy efficiency programs are as diverse as the activities that consume energy.

The Business Council will not attempt to address all of DOE's energy efficiency programs given their breadth and diversity. Rather, we would like to focus on a few programs that we believe illustrate the value of the federal government's energy efficiency effort.

DOE's efficiency research effort varies by technology -- measured against its relative maturity, the degree of risk associated with its development, and its potential for market success.

BATTERY TECHNOLOGY

The battery provides an example of a promising technology for electric vehicles (EVs). DOE has conducted research, in cooperation with the Advanced Battery Consortium, that has lead to significant improvements in battery performance. The Ovonic Nickel-Metal Hydride battery -- produced by Business Council member Energy Conversion Devices -- has met or exceeded many mid-term performance goals set by the Consortium, affirming the future market viability of EV technologies. Although the technology is ready for market introduction, further advancements in battery technology are required before the electric vehicle becomes commonplace. The electric battery and other promising energy storage technologies could redefine transportation, ending the transportation sector's virtual total reliance on liquid fossil fuels.

ALTERNATIVE FUEL VEHICLES

DOE also is working with the private sector on technologies that offer near-term economic and societal benefits. Alternative fuel vehicles (AFVs) -- including natural gas and electric vehicles -- promise to reduce US reliance on imported oil while virtually eliminating emissions of criteria air pollutants. The Energy Policy Act of 1992 requires DOE to assist fleet owners in using AFVs. Natural gas, a cheap and plentiful domestic resource, is well-suited as an alternative vehicle fuel. However, the lack of fueling stations has limited the wide spread use of natural gas vehicles which, in turn, makes refueling stations uneconomical. To overcome this classic market failure, DOE has initiated a "clean cities" program in partnership with local governments, vehicle manufacturers, fuel suppliers, and fleet operators. By working in concert with local governments, manufacturers, and suppliers, and by leveraging its own modest federal fleet purchase program, the federal government can help overcome the infrastructure development barrier that limits the introduction of clean natural gas vehicles.

FUEL CELL TECHNOLOGY

Other technologies are moving, with public sector help, from the basic research phase into the market demonstration phase. The fuel cell, which uses chemical reactions to produce electricity and heat, is a technology that offers remarkable efficiency and low emissions. DOE, in partnership with industry, is in the process of demonstrating the commercial technological viability of the fuel cell. Fuel cell units currently are being scheduled for commercial installation in the US as well as around the world. Its long-term outlook will depend on further refinements aimed at reducing production costs.

GAS COOLING TECHNOLOGY

DOE's energy efficiency programs also include a modest effort to develop natural gas cooling technologies. Gas cooling systems using desiccant (dehumidification) or absorption technologies offer alternatives where utility rate structures favor the use of natural gas. Gas-fired heat pumps are suited for residential applications. DOE's program is aimed at validating the performance and improving the cost, efficiency, and quality of these technologies.

UTILITY PROGRAMS

DOE also has worked effectively with utilities and power authorities to promote energy efficiency. Through voluntary programs such as Climate Wise, DOE has obtained the commitment of utilities to reduce their emissions of greenhouse gases. Generally, activities that reduce emissions also reduce energy use. Climate Wise participants -- such as Business Council members New York Power Authority and Sacramento Municipal Utility District (SMUD) -- have premised their programs on sound economic principals. In fact, SMUD attributes its aggressive support for energy efficiency as a primary reason it has been able to stabilize its electricity rates.

STANDARDS AND INSULATION

DOE has played a constructive role in providing educational and technical support of building codes and standards such as the Model Energy Code and ASHRAE 90.1. These codes and standards -- promulgated by private-sector organizations -- help insure that our nation's housing stock reflects good building construction practices and is reasonably energy efficient.

In addition, DOE has recently published industrial insulation guidelines that will significantly improve energy efficiency in this sector of the economy. DOE is currently providing educational and technical support to help industry implement the guidelines. DOE also has provided valuable technical assistance to the polyurethane foam insulation industry, helping the industry find a substitute for CFCs as a blowing agent used in insulation installation. The CFC-free polyiso insulation performs as efficiently as the prior product.

FEDERAL ENERGY MANAGEMENT

Finally, I would like to address an area where government action can have immediate positive impact. The federal government spends over $3.0 billion annually to light, heat, and cool the interior of buildings it owns and operates. These facilities, like those occupied by private industry, often can be economically upgraded and retrofitted to reduce the energy required to provide essential building energy services.

In particular, the federal government has an opportunity to adopt practices used broadly in the private sector, such as energy service performance contracting, to reduce energy usage while minimizing upfront capital outlays. We believe every agency of the federal government should increase its utilization of energy service performance contracts to take advantage of this approach for upgrading facilities and reducing energy expenditures. The Department of Energy can help them do this.

CONCLUSION

DOE's energy efficiency activities reflect the broad diversity of the technologies and services that characterize the energy efficiency industry. The federal government has a long history of supporting energy efficiency programs based on the many societal benefits offered by these programs. DOE's programs are directed at mitigating market distortions and are consistent with sound market theory. For these reasons the Business Council urges Congress to continue its support for these efforts.

THURSDAY, MARCH 7, 1996.

BOM

WITNESS

RICHARD BAJURA, WEST VIRGINIA UNIVERSITY, NATIONAL RESEARCH CENTER FOR COAL AND ENERGY

Mr. REGULA. West Virginia University, National Research Center for Coal and Energy.

Mr. BAJURA. Good afternoon.

Mr. REGULA. Mr. Bajura, is that right?

Mr. BAJURA. That's right, sir.

Mr. REGULA. Thank you. Go ahead.

Mr. BAJURA. George Fumich wishes to say "hi." He had unavoidable travel and wasn't able to make it.

As you know, I'm from West Virginia, and coal mining is very important to our State. We have worked in the past with the former Bureau of Mines on programs dealing with health and safety research and mine and reclamation research.

Last year the administration and Congress moved to eliminate the Bureau of Mines. They kept part of the health and safety program. They parked it in DOE's fossil energy for the time being and said, "You ought to move it next year." And they cancelled the authorization in mineland reclamation research. And from what I can tell, there's no other agency that falls under your jurisdiction that has the authority to do that kind of research.

In the past we've testified before your committee about the need for health and safety research. Coal mining is a dangerous occupation. Ninety-eight people got killed last year; $1.3 million in black lung claims from respirable coal mine dust. Mineland reclamation continues to be a problem, especially for minelands that were damaged before this macro-law in 1977. I'd advise you to come white water rafting on the Cheat River in West Virginia, but I think the acid in it would sting your eyes and your mouth.

Mr. REGULA. I use 68, and I think we cross the Cheat——

Mr. BAJURA. Yes, you do.

Mr. REGULA. It looks like at that point it's a reservoir. Is it?

Mr. BAJURA. It's a reservoir, but further upstream it's an interesting white water area.

Mr. REGULA. Now is there a dam on the Cheat that backs up——

Mr. BAJURA. It's just about two miles——

Mr. REGULA. There's a long bridge across the Cheat River.

Mr. BAJURA. Just about two miles downstream from your crossing point.

Mr. REGULA. Oh, is that right? Now why a dam?

Mr. BAJURA. It's a hydro-dam.

Mr. REGULA. Hydro?

Mr. BAJURA. About 25 feet of head, and it forms a nice recreational area during the summer months.

Mr. REGULA. Yes, I noticed that when we crossed it, a lot of boats. But you say it's high in acid?

Mr. BAJURA. High in acid from massive mine drainage.

Mr. REGULA. Is that from shaft, deep, or strip?

Mr. BAJURA. A little bit of both. A little bit of both. And many of these mines were mined before this macro-law came into existence.

Mr. REGULA. So these are orphan lands?

Mr. BAJURA. That's correct, and the Federal Government has to contribute to this reclamation.

Mr. REGULA. Yes, well, we've got far more to do than we have resources.

Mr. BAJURA. I understand that.

Well, to the bottom line of what I'm here to talk about, I know this is a transition year. I don't know what will happen with health and safety. We want to impress on the committee that this is important work, that we should maintain a viable health and safety research program. I would point out that the academic institutions of this country made valuable contributions, and they should be considered as a part of this activity. And I would like to see that, wherever the health and safety activity winds up, that it be given a place where it has some leadership, its management team has a chance to exert some program direction.

Mr. REGULA. Well, we want it to continue. What we're trying to do is streamline——

Mr. BAJURA. I understand.

Mr. REGULA [continuing]. And thereby get more efficiencies in the expenditure, because I think, prospectively, government's going to be faced with diminishing resources, relatively, and, therefore, we need to figure out how we can be as cost-effective as possible.

Mr. BAJURA. And I support that. I just don't want to see it go away, because I think that activity is important.

Mr. REGULA. Well, I understand.

Mr. BAJURA. And on the issue of mineland reclamation, this continues to be an important problem.

Mr. REGULA. Oh, I know. I know.

Mr. BAJURA. And I hope that this committee will find some way to continue supporting that research.

Mr. REGULA. I have a farm in Ohio, and there's a lot of orphan lands in the vicinity where I live. So I'm very familiar with the problem, and it's a problem in drainage, a lot of bleed sulfur——

Mr. BAJURA. That's correct.

Mr. REGULA [continuing]. Into the streams; that's what you're saying——

Mr. BAJURA. That's correct.

Mr. REGULA [continuing]. With the Cheat River?

Mr. BAJURA. That's correct.

Well, that's my message, Congressman. I appreciate your support.

Mr. REGULA. Okay, thank you for coming.

[The statement of Mr. Bajura follows:]

National Research Center for Coal and Energy
West Virginia University
Office of the Director

Statement

Richard A. Bajura and George Fumich
National Research Center for Coal and Energy

Committee on Appropriations
Subcommittee on Interior and Related Agencies
Ralph Regula, Chairman

PROGRAMS OF U.S. BUREAU OF MINES

March 7, 1996

Our testimony focuses on national needs related to miner health and safety and to mitigating the detrimental effects of past mining activities when the environmental laws for reclamation were less stringent.

Research addressing these areas has been conducted by the US Bureau of Mines and its academic and industrial partners. With the closing of the Bureau of Mines and the transfer of certain functions to other agencies, we urge the Committee to maintain its focus on our national needs for miner safety and reclaiming the environment damaged by old mining operations.

We understand that jurisdiction of some of the former health and safety functions of the USBM may be transferred to other subcommittees under the Committee on Appropriations. Because of the past history of this subcommittee in dealing with our nation's mining program, we seek your diligent oversight during the transition process to ensure continued funding for this important research which will benefit our miners and our national economy.

EXAMPLES OF NEED FOR RESEARCH

Mining continues to remain one of our most hazardous occupations. Ninety-eight miners were killed on the job in 1995, an increase of 14 persons over the previous year.

Forty-eight of those fatalities occurred in coal mining jobs. Despite the progress being made in control technologies, many other miners are exposed to high dust levels and risk disability and death from coal workers pneumonociosis in what should be the quiet years of their life. The cost of treating this disease is staggering. In 1993, disabled miners filed black lung compensation claims totalling over $1.3 billion.

Pollution from mining operations causes severe damage to the environment. The Cheat River, located in West Virginia, is rated as the eighth most endangered river in the United States as a result of acid drainage from coal mines. Current environmental regulations and reclamation efforts have made a positive impact on this problem, but much needs to be done. Many of the mines contributing to the pollution problem were opened prior to the existing legislation and must be reclaimed using public funds. The economic value of the Cheat as a whitewater rafting river is negatively impacted by the smell, the taste, and the color of the river which is so acidic it stings the eyes of recreational users. In all, over 5,000 miles of streams are damaged from acid mine drainage.

Hundreds of thousands of inactive and abandoned mines are on public lands for which we as taxpayers must shoulder the public health and safety liability and the reclamation costs. The Berkeley Pit, for example, a Superfund site in Montana, is filling with water contaminated by mining operations at a rate of 125 feet a year and threatens the aquifer which supplies the surrounding communities.

We have cited only a few examples demonstrating the need for continued research to find effective and economical ways to protect mine workers and to mitigate the effects of past mining. Progress has been made in these areas, but the problems are not yet resolved. We are on the verge of great achievements.

STATUS OF MINE HEALTH AND SAFETY PROGRAMS IN THE UNITED STATES

The Bureau was created legislatively in 1910. Its mission included mine health and safety (including mine inspections), research, and minerals information. The Bureau's inspection responsibilities were transferred many years ago to the Mine Safety and Health Administration, an agency which is now so underfunded that it lacks an adequate number of inspectors to send to the mines. Perhaps not by coincidence, mining fatalities almost doubled in the last two months of 1995 compared to 1994.

We note that industrial research continues to decline because of economic pressures companies face in competing with other national and international producers and in meeting regulatory requirements. In addition, many small mining companies do not have the expertise resident on their staff to conduct the necessary research in health and safety or environmental remediation.

What remains of the original Bureau's research program is focused in the areas of health and safety research and materials research. Their budget is highly restricted. Their charter contains no directive to continue the environmental remediation research in which the Bureau has made significant contributions. The funding constraints also inhibit cooperative programs between the Bureau and academic institutions. University researchers can provide specialty expertise and facilities in support of former Bureau programs. The academic programs also provide important linkages to industry through both industrial participation in designing and conducting research projects and in the transfer of technology through the students who graduate from the projects to assume jobs in industry.

RECOMMENDATIONS

We are appearing before your Committee today because of our concern that the important research conducted under the programs of the former Bureau of Mines should be continued. We must increase the vitality of the health and safety programs currently supported by this Committee through adequate funding for a vigorous research effort in partnership with academic institutions. We must authorize and fund the continuation of environmental remediation research, especially in the area of treating acid mine drainage.

Many significant problems remain today in the areas of health and safety and environmental remediation. We have given examples in testimony in previous years which show that research investments in these areas save the taxpayers hundreds of times more money than the cost of the programs.

The Administration and the Congress, in their wisdom, will address the future funding and placement of what remains of the Bureau during this session. We recommend the following outcomes of your deliberations:

Health and Safety Research

(1) Continue the vital research addressing the health and safety of miners, especially in coal mining research;

(2) Provide support for both in-house programs and work conducted by the academic community;

(3) Maintain line item funding for the health and safety research programs to ensure that the program remains identifiable and the administrative leaders have a strong voice in establishing program direction.

Environmental Research

(4) Continue a strong environmental research program in remediation of acid mine drainage and mine land reclamation;

(5) Provide support for both in-house programs and the work the academic community.

We recommend funding at a level of $40 million for health and safety research, with a minimum of $5 million for the support of research partnerships with the academic and industrial community.

We recommend funding for mine land reclamation research at a level of $5 million, with a minimum of $2 million for the support of research partnerships with the academic and industrial community.

Thank you for the opportunity to testify before the Committee today. We appreciate your interest in the work of our miners and in protecting our environment.

R. Bajura
304/293-2867 x 401

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THURSDAY, MARCH 7, 1996.

DOE

WITNESS

THEODORE H. FLEISCH, AMOCO CORPORATION

Mr. REGULA. Amoco, Dr. Fleisch.

Mr. FLEISCH. Good afternoon, Mr. Chairman. Thanks for your time. Only two more to go; right?

Mr. REGULA. Yes, you and—yes.

Mr. FLEISCH. I'm a manager with Amoco down in Houston in the exploration and production company.

Mr. REGULA. Okay, I've heard of it. [Laughter.]

Mr. FLEISCH. Amoco strongly encourages the subcommittee to provide funding for the gas-to-liquids program in the DOE fossil——

Mr. REGULA. Natural gas?

Mr. FLEISCH. For liquid clean-burning——

Mr. REGULA. The one we heard about earlier here?

Mr. FLEISCH. Something similar like that, yes, but we believe this is a very important program.

Let me briefly explain to you why the gas-to-liquid program is important and why our technology, so-called ITM syngas, can make a big difference, and to point out the benefits to this country. As you know, natural gas is a clean-burning fuel which is used in the United States, 25 percent of the total energy mix. Most of the gas can go to market through a piping network.

Mr. REGULA. Right.

Mr. FLEISCH. However, there are large gas reserves in remote locations, such as in Alaska, which cannot be brought to the market with conventional means.

Mr. REGULA. Right.

Mr. FLEISCH. We need some advanced technologies, such as worked on in the DOE gas-to-liquids program——

Mr. REGULA. So you would contemplate in Prudoe that the gas that's been reinjected could be brought up and liquefied and use the same pipeline?

Mr. FLEISCH. Exactly, and we can do more of our domestic use. So you make a liquid and use the existing pipeline for another 30 years.

More importantly, also, for the first time now, you can convert natural gas into a liquid transportation fuel, and, therefore, decrease dependence on imported crude oil and cleanup. Two-thirds of crude oil goes into the transportation sector, as you know.

Mr. REGULA. Are you saying that a liquid fuel that would be produced from natural gas would have fewer pollutants or emissions——

Mr. FLEISCH. Yes.

Mr. REGULA [continuing]. If burned in an automobile?

Mr. FLEISCH. Yes. I talk about it, yes.

Mr. REGULA. Okay.

Mr. FLEISCH. Yes.

Mr. REGULA. That's interesting because a natural gas engine is obviously less polluting.

Mr. FLEISCH. It's a clean-burning engine. Compressed natural gas is a clean-burning fuel, but it's very costly. You need a special engine. You need pressure tanks and things like this. So liquid fuel is a much more customer-friendly fuel than your natural gas fuel.

Mr. REGULA. All right.

Mr. FLEISCH. So technologies to convert natural gas to liquid fuels exist for a long time. The Germans did it back in the twenties. However, they are not competitive today.

Mr. REGULA. Cost problem?

Mr. FLEISCH. Cost problem.

Mr. REGULA. I know.

Mr. FLEISCH. And the customer doesn't pay extra for a clean-burning fuel.

Mr. REGULA. Right, right.

Mr. FLEISCH. But we have come a long way and we do see the light at the end of the tunnel, and we believe that, with our new ITM syngas technology, we can close the gap and come to the point where liquid fuel can compete with conventional fuels derived from petroleum.

Okay, let me just briefly, two minutes of what the technology is all about, and here is a grant that has been part of the record. What you see here is the following: Amoco has worked with Argonne National Lab and Sandia National Lab since about 1991 to develop a new ceramic material which can separate oxygen from air on a very low-cost basis. This oxygen can then react with natural gas to something we call syngas.

Mr. REGULA. Okay.

Mr. FLEISCH. And syngas is a very important chemical building block to a number of different materials. As you'll see, there are clean-burning fuels, methanol, fertilizer, and so on and so forth. And so if you are able to produce syngas at low cost, you obviously have advantages in all those industries.

Mr. REGULA. So your process is to make the syngas?

Mr. FLEISCH. Make the syngas cheaper.

Mr. REGULA. Cheaper, right.

Mr. FLEISCH. Make the syngas cheaper, and, therefore, help all those technologies. This technology has received an award. It was considered to be one of the most important 100 inventions in the world last year, and has the potential to reduce the cost by about 30 percent, which would close the gap.

So what would be some of the potential benefits here? As I already mentioned, remote gas can be brought to market, such as from Alaska or from offshore platforms.

Mr. REGULA. In a liquid form?

Mr. FLEISCH. In a liquid form. Secondly, we have come up recently with a new fuel, and this is just for your staff to use, which we call dimethyl-ether or DME, which is an ultra low-emitting diesel alternative.

Mr. REGULA. Well, is your liquid stable at ordinary pressure and temperature?

Mr. FLEISCH. This behaves like propane, like LPG. So we need an LPG-like infrastructure.

Let me point out that we really talk about two different kinds of fuels. You could either make synthetic diesel or synthetic gasoline, fitting in with the existing infrastructure. You have some benefits, no sulfur, no hydrogen. Or, you come up with something totally different like this, which has, for instance, no soot emission in a diesel engine. The noise level is down to gasoline engines and the NO_X is very, very low, and it does not require any changes to the diesel engine.

This is considered by Detroit and other diesel engine manufacturers as the first alternative fuel——

Mr. REGULA. Now would the syngas go through the pipeline——

Mr. FLEISCH. No, you would make the fuel right here.

Mr. REGULA. You make the fuel. So you decide in Prudoe——

Mr. FLEISCH. Exactly right.

Mr. REGULA [continuing]. Whether it will be diesel or gasoline——

Mr. FLEISCH. Gasoline or DME or methanol.

Mr. REGULA. So the process, all the infrastructure to do this, would be right there at the well head.

Mr. FLEISCH. That's right. That's exactly right.

Mr. REGULA. And this liquid, whether it's diesel or gasoline, is stable, standard——

Mr. FLEISCH. Oh, yes. This is synthetic——

Mr. REGULA. It doesn't need to be under pressure——

Mr. FLEISCH. Exactly right; it does not need to be under pressure. So it becomes—you know, the market pull that we have not seen, for instance, with compressed natural gas.

Mr. REGULA. You need money from the Federal Government along with your own to develop this process?

Mr. FLEISCH. That's right. We have, as I mentioned, worked already with the government for the last five years. We have come a long way, but many hurdles remain. We have partnered already with Air Products, another company that has worked a lot in this area, and we also need a partnership with the national labs and the help of the government. We are pledging $16 million for this $35 million, five-year program.

Mr. REGULA. Sixteen of yours, of Amoco's?

Mr. FLEISCH. Sixteen of Amoco's and end products.

Mr. REGULA. End products.

Mr. FLEISCH. And, also, we have a payback provision. If this technology works out, we will pay back the government every penny we got with interest. I think I would like to restate this as well.

So, in a nutshell, then, very briefly, because it has been a long day for you, this is what this is all about. Amoco has worked on natural gas conversion for 10 years, and so far we have to admit our products—we can do it—they are too expensive. We believe that this technology will come to the point where no tax incentives are needed for a clean-burning fuel.

Mr. REGULA. It seems to me the Canadians would be very interested in this because they have a wealth of natural gas, and they have the pipeline infrastructure in many areas.

Mr. FLEISCH. Yes, but they have too much gas, and they obviously export some to the United States. They look for new outlets of natural gas as well.

Mr. REGULA. They extract the oxygen. I assume there would be some device at Prudoe—we keep using Prudoe—to take oxygen out of the air?

Mr. FLEISCH. Out of the air. So any material that only oxygen can diffuse, too, and not nitrogen. This is at the heart of the invention. Today, remember, you produce oxygen cryogenically. You cool the air down, and the oxygen is a liquid energy-intensive—environmental problems. Here you just have air on one side of the material, oxygen goes through, and they extract natural gas.

Mr. REGULA. What's your target date for commercialization?

Mr. FLEISCH. Pardon me?

Mr. REGULA. What would be your target date for commercialization?

Mr. FLEISCH. 2001.

Mr. REGULA. That's not far away.

Mr. FLEISCH. Yes.

Mr. REGULA. That's about the year we're going to balance the budget. [Laughter.]

That's 2002, yes. So you're ahead of us. [Laughter.]

Mr. FLEISCH. Thank you very much for your time.

Mr. REGULA. Thank you.

Mr. FLEISCH. We appreciate it.

Mr. REGULA. Very interesting.

[The statement of Mr. Fleisch follows:]

Testimony
of
Theo H. Fleisch
Manager of Gas Transportation and Upgrading
Amoco Production Company
Before the
United States House of Representatives
House Appropriations Subcommittee
Interior and Related Agencies

March 7, 1996

Good afternoon Mr. Chairman. My name is Dr. Theo Fleisch and I am the Manager of the Gas Transportation and Upgrading Programs for the Amoco Exploration and Production Company. Mr. Chairman, I want to thank you for the opportunity to express Amoco's views on the critical Gas-to-Liquids Technology Program in the Department of Energy's Fossil Energy budget.

Amoco strongly encourages the Subcommittee to provide an $8.0 million FY 1997 appropriation for the Gas-to-Liquids Program. This amount includes sufficient funds to sustain the current Gas-to-Liquids Program as well as to provide additional funds to support our proposed ITM Syngas project which I would like to introduce to you this afternoon. Now more than ever, this program needs your support. .

Natural gas is a clean-burning fuel which is efficiently used in homes, industries and electric power generation. It's competitive cost and clean burning characteristics give it a large and continuous expanding role in the total energy outlook of our country. Natural gas is rapidly becoming the fuel of choice in numerous applications in our long-term transition to a more sustainable energy future. The 1992 "National Petroleum Council Study for the Potential of Natural Gas in the United States" estimated that there are sufficient recoverable reserves of domestic natural gas to meet our country's energy demands at current levels for about 60 years. A large amount of our domestic natural gas can be easily transported with low cost by pipeline to population centers throughout the United States. However, it becomes costly to transport when it is remotely located from user-customers and where pipelines are unavailable because of geographic and climatic deterrents. To enable the efficient and complete recovery of this vast domestic gas resource, particularly the large reserves remotely located in such places as the Alaskan North Slope, new advanced and unconventional technologies must be developed to transport such gas to the user-customers. One such technology involves the chemical conversion of natural gas into liquid forms which can then be distributed using conventional facilities. The aim of the DOE gas-to-liquids program is the successful development of conversion technologies of natural gas to desirable liquids, and particularly liquid transportation fuels. Such technologies will reduce our nation's dependence on imported petroleum, enable use of currently unusable clean energy sources, and help to sustain a growing economy while maintaining the environment.

Technologies for converting natural gas to clean liquid fuels have been known for many years but are not economically competitive with the long established refinery processes based on petroleum. However, chemical conversion approaches have a great potential for technological improvements which could diminish the disparity between conventional fuels and new alternative liquid fuels derived from natural gas. One such improvement can be found in our new ITM Syngas technology which we believe has the potential to significantly reduce the cost of natural gas conversion to desirable liquid products. However, this technology requires further support, development and financial commitment of resources beyond what industry can independently fund at this stage of the technology in order for it to reach it's potential. The Gas to Liquids Program under Fossil Energy has provided resources to facilitate the development of programs such as ours in the past. We believe that it is imperative not only to sustain the Gas to Liquids Program but to enhance and enable it to provide the support necessary to achieve the required breakthroughs in chemical conversion technologies that will allow the fullest and most economical utilization of our vast natural gas resources.

Amoco has also been actively involved in research and development work on the conversion of natural gas to liquid fuels for many years. Recently, we have identified and made public, the discovery of a natural gas derived alternative diesel fuel called DME which demonstrates ultraclean emission characteristics. Preliminary diesel engine test results indicate that this new alternative diesel fuel has emission levels better than those required by the California 1998 ULEV standards. Any successful market pull of this new alternative fuel towards commercial availability must be accompanied by the ability to produce it at prices competitive to conventional fuels even though DME displays exceptional environmental characteristics. We believe the advancement of technologies such as our ITM Syngas technology could contribute significantly towards making new fuels like DME cost competitive with conventional fuels. The breakthroughs that are required to make clean natural gas derived fuels cost-effective alternatives to conventional fuels are not trivial. Considerable efforts and resources must be expended in order to be successful and to achieve the benefits of a clean environment and the energy security our nation seeks.

Over the past several years, Amoco worked closely with materials experts from both Argonne National Labs and Sandia National Labs and invented a new class of ceramic materials that separate oxygen from air. This separated oxygen can then be combined with natural gas in the same reactor to transform that natural gas into a mixture of hydrogen and carbon monoxide which is called syngas. Syngas represents a fundamental chemical building block which can be conveniently processed into clean liquid fuels, a wide variety of petrochemicals, and clean hydrogen. ***The combination of this novel air separation technique using the newly discovered materials and reaction with natural gas in the same reactor is referred to as the ITM Syngas Process.*** This technology could result in a major step change in the way alternative liquid fuels and chemicals are produced by simplifying the most costly step in the manufacturing process thereby making natural gas derived products more cost competitive to petroleum based liquids.

Using ITM Syngas technology will enable remote gas to be brought to the user-customer market more economically by converting it into liquids which may be transported by conventional means; for example, from off shore platforms or from the remote fields of the North Slope of Alaska. Furthermore, we believe that the combination of ITM Syngas technology with the production of added-value fuels such as DME could even make present day commercially unattractive small gas fields a competitive source of natural gas. With a cost-effective way of making syngas from natural gas, there will be a significant synergy among the multiple end users of these fundamental building blocks for the fuels, the chemicals and hydrogen manufacturing industries throughout our nation. Furthermore, use of ITM Syngas technology will enable economical hydrogen for petroleum refineries to facilitate increased hydrogen needs for Clean Air Act-driven oxygenated gasoline, reformulated gasoline, lower-sulfur diesel fuel and upgrading of heavier and high-sulfur crude oils. Such hydrogen would also assist in sustaining the global competitiveness of segments of the Chemical Industry which require syngas or hydrogen to produce its chemicals. Syngas is the raw material for the manufacture of ammonia based fertilizers, methanol, olefins for polymers and numerous chemicals such as acetic acid, ethanol, industrially important solvents and many other products which are crucial to our competitive domestic petrochemical industries. In short, we believe that ITM Syngas technology will have a broad cross-cutting impact on United States industry and will play a significant role in the development of new and competitively priced environmentally acceptable liquid fuels and chemicals.

We anticipate a significant impact on domestic investment translating into increased employment if the technical and economic soundness of the ITM Syngas technology can be established. A ready example of such growth can be illustrated from the conventional diesel fuel market. Tests have shown that natural gas-derived DME not only exceeds Clean Air Act requirements, but even California's more stringent 1998 ULEV (ultra-low-emission-vehicle) standards as I have mentioned earlier. These tests have demonstrated that DME fuel eliminates fuel exhaust smoke and greatly reduces other emissions while simultaneously reducing diesel engine noise to near gasoline engine levels. These features enable a conventional diesel engine to overcome two significant shortcomings related to noise and pollution. As a result of overcoming these shortcomings, the efficient diesel could become much more attractive to the typical automobile driver. Furthermore, since the diesel engine is much more energy efficient than the conventional gasoline engine, the typical driver can travel more miles on the same amount of energy, resulting in energy conservation, reduction in CO_2 emissions, and extension of our energy reserves.

Mr. Chairman, I'd like to have you see an example of this technology which has been the recent recipient of a prestigious R&D 100 Award. You are holding an advanced ceramic material composition which possesses the remarkable capacity to selectively remove oxygen from air on one side and pass it to the opposite side where the oxygen can be used to convert natural gas into syngas. If such a material as you hold in your hand can be transformed into the practical devices we envision, which can withstand the operating requirements of commercial processes, then this laboratory material can be developed into a revolutionary new technology to convert natural gas-to-liquid fuels, hydrogen, and chemicals at a much lower cost.

Although we have come a long way in our research program, ITM Syngas technology has only passed through its incubation stage and will require significant development and financial commitment beyond our own capabilities. We will continue to require the basic science expertise available through this nation's valuable resource: the National Laboratory System. Argonne National Labs will continue to play a significant role in this project for which we are appreciably thankful. Overall, a substantial high-risk investment of $35 million dollars in basic materials and engineering research will be required over the next five years to prove the technical and economic viability of this technology. To reduce the substantial risks involved in the development of this new technology, Amoco has already formed a partnership with Air Products and Chemicals, one of the leading US industrial gas companies, whose expertise, commitment and investment in ITM technology complements that of Amoco and have included a small ceramic processing company, Ceramatec, as the developmental manufacturing firm to demonstrate fabrication of the critical reactor components to make this technology work. Amoco, Air Products, Argonne National Labs and Ceramatec are prepared and committed to advance this technology but we need the help of the government to share the risk and to provide the impetus and critical resources to move this program forward in an aggressive, timely and effective manner. Together, Amoco and Air Products are prepared to cost-share $16 million toward the proposed $35 million program, an amount which we believe is required to move this technology forward to overcome the technical hurdles required to be successful. We have agreed ahead of time to a full payback of the Federal funding contribution if the project receives government support and the technology is successfully commercialized. Finally, other companies in the natural gas producing industry are carefully watching with keen interest on how this technology unfolds.

In conclusion, I would like to restate the importance of the Department of Energy, through its Gas-to-Liquids Program, and the industrial sector continuing to invest in energy related technologies. The technology developed through continuation of cooperation and participation between government-industry partnerships will enhance the international competitiveness of the United States energy and environmental industries. As we enter the 21st century, these are integral programs for the Nation's overall effort to improve environmental quality, protect the economy from escalating energy costs and use our natural gas resources in a balanced mix of fuel and petrochemical sources.

THURSDAY, MARCH 7, 1996.

DOE

WITNESS

JOSEPH N. DARGUZAS, SARGENT AND LUNDY

Mr. REGULA. I think this is the last witness, Sargent and Lundy, Joe Darguzas. Okay, you're the cleanup hitter here.

Mr. DARGUZAS. Saving the best until last.

Mr. REGULA. There you go. [Laughter.]

Mr. DARGUZAS. Well, thank you very much for the opportunity to speak in behalf and in support of the DOE's fossil energy programs.

Mr. REGULA. What part of it are you interested in?

Mr. DARGUZAS. I'm specifically interested in the low-emission boiler system project, the LEBS, and you have——

Mr. REGULA. Do you agree with 1999—no, no, that was turbine. When's the low-emission boiler system come onstream?

Mr. DARGUZAS. We would have our proof-of-concept plant, if things go as they are now, planned to go in commercial operation in 1999, and that would have a design then ready to go to the larger scale by the year 2000.

Mr. REGULA. When you say, "low emission," is this reducing the material going into the air?

Mr. DARGUZAS. Yes, sir. We——

Mr. REGULA. You're designing a boiler that would be more efficient in using the fuel; is that correct?

Mr. DARGUZAS. That is correct, which would result in a lower cost of electricity and lower emissions into the environment.

Mr. REGULA. Would this—well, this would fly regardless of the fuel that would be used.

Mr. DARGUZAS. Yes, sir.

Mr. REGULA. You're into the boiler only?

Mr. DARGUZAS. Well, actually, Sargent and Lundy's role is as an architect-engineer and as a project developer. So our focus is really not just on the boiler, but, in fact, on the entire power plant system, which includes the boiler.

Mr. REGULA. But it could be coal; it could be natural gas; it could be petroleum as a fuel—or is yours fuel specific?

Mr. DARGUZAS. The design of the boiler system is addressing specifically pulverized, coal-fired plants——

Mr. REGULA. Okay.

Mr. DARGUZAS [continuing]. But the flue gas cleanup system, which is downstream of the boiler, could also be used for natural gas. Well, you wouldn't use it for natural gas, but you could use it for oil.

Mr. REGULA. So—could you burn high-sulfur coal?

Mr. DARGUZAS. Our design basis fuel is high-sulfur coal.

Mr. REGULA. Oh, okay. You end up with sludge?

Mr. DARGUZAS. We end up with actually fertilizer as a byproduct.

Mr. REGULA. What about getting the sulfur?

Mr. DARGUZAS. The sulfur is ultimately turned into a fertilizer.

Mr. REGULA. That's an interesting concept.

Mr. DARGUZAS. We believe it is. We believe it is, Congressman.

Mr. REGULA. If you say 2001, you're not that far from commercial application.

Mr. DARGUZAS. If we can get through the next several years and build our proof-of-concept in 1999, that's correct.

Mr. REGULA. Okay. Now does your company does this. Do you get private as well as public funds?

Mr. DARGUZAS. At this point the Federal Government is contributing about 25 percent of the LEBS program—I'm sorry, about 75 percents of the LEBS program with 25 percent from private funds. As we move into the last phase, that number will essentially reverse, and we will be——

Mr. REGULA. The private funds would come from the utility industry and the boiler industry?

Mr. DARGUZAS. And from our own internally-generated funds.

Mr. REGULA. Babcock & Wilcox is in my district——

Mr. DARGUZAS. Yes, sir.

Mr. REGULA [continuing]. And they're into the boilers.

Mr. DARGUZAS. Yes, sir.

Mr. REGULA. This would be a clean coal project.

Mr. DARGUZAS. It is a—LEBS is similar to clean coal——

Mr. REGULA. Yes, right.

Mr. DARGUZAS [continuing]. But with small "c's," not capital "C's."

Mr. REGULA. Okay, so you would gain efficiencies in the combustion process?

Mr. DARGUZAS. Yes.

Mr. REGULA. And you would have a new type of process to capture waste. So your stack emissions would be fairly clean?

Mr. DARGUZAS. They would be very much lower than——

Mr. REGULA. Meet EPA standards?

Mr. DARGUZAS. In fact, our goals would be to have over 98 percent sulfur removal, which is better than current EPA standards, and our NO_X emissions would be over 70 percent.

Mr. REGULA. Do you get into the recapture of energy, like the water? I think we had one of the previous witnesses talk about having a full recapture, so none of the energy is wasted.

Mr. DARGUZAS. That's correct. We would not have any discharge from the plant into the environment.

Mr. REGULA. It's a closed cycle?

Mr. DARGUZAS. Yes.

Mr. REGULA. Are you into designing boilers with different metal components that have maybe a higher degree of transmission?

Mr. DARGUZAS. That's one of the things that needs to be developed over the next year to two years, is the ability to, as one of the previous witnesses talked about, raising the temperatures so that you get better combustion efficiencies.

Mr. REGULA. It's interesting. Anything else you'd like to cover?

Mr. DARGUZAS. Just that we hope you're able to continue supporting the program, and we're glad you're here this late in the day. [Laughter.]

Mr. REGULA. It's all very interesting. I think energy is going to be a key element. We weren't in Desert Storm because we needed more sand. [Laughter.]

Mr. DARGUZAS. That's right. I think with the U.S. coal industry there is more—in my home State of Illinois, there's more energy in my home State than there is in Saudi Arabia.

Mr. REGULA. Well, and coal resources are just enormous. It's a combustion energy problem.

Okay, well, thank you very much.

Mr. DARGUZAS. Thank you, Mr. Chairman.

Mr. REGULA. It's quite an education.

[The statement of Mr. Darguzas follows:]

March 7, 1996

Interior Appropriations and Related Agencies

FY97 Appropriations

The Honorable Ralph Regula
Chairman
Subcommittee on Interior and Related Agencies
Committee on Appropriations
United States House of Representatives
B0308 Rayburn House Office Building
Washington, D.C. 20515

U.S. Department of Energy
Fossil Energy Programs
Coal Research and Development
Advanced Clean/Efficient Power Systems
Advanced Pulverized Coal-Fired Power Plant

Low Emission Boiler Systems (LEBS)

Testimony Submitted by Joseph N. Darguzas
Sargent & Lundy, L.L.C.
55 E. Monroe
Chicago, IL 60603
312-269-6902

Thank you very much for this opportunity to express my opinion concerning what I believe to be an extremely critical issue facing the United States and our energy independence. As a Registered Professional Engineer in many states and as a citizen of the United States, my professional opinion is that continued Federal and State participation in fossil energy development and demonstration projects is essential.

In my own home state, Illinois, we have a multi-million dollar program supporting fossil energy advancements. My own company, Sargent & Lundy, has invested millions of dollars in research, development and demonstration programs. However, we cannot afford to continue to compete against foreign companies who have the backing of their central governments without the backing of our federal government.

Others today have spoken in support of the Clean Coal Technology program and advancements in the efficient use of natural gas. You will undoubtedly also receive much written testimony supporting those efforts. We also endorse those fossil energy programs. Today, I would like to also speak in support of another program having near-term benefits, the Low Emission Boiler Systems (LEBS) program.

We support the continuation of the FY 96 line item for Advanced Pulverized Coal-Fired Power Plant development of the Low Emission Boiler Systems (LEBS) for FY 97. This will allow the benefits of previous years' funding to be realized and this phase of the LEBS project work to be completed.

OFFSET
CAMERA COPY

Of utmost importance to the future of the U.S. economy is the advancement of low cost, low emission technologies now being developed through the Combustion 2000 LEBS project. In the near term, this will provide lower cost electricity and will be ready for commercialization in the year 2000 when tougher environmental regulations will be in place.

Funding significantly lower than the current levels will cause project delays that will result in this window of opportunity being lost to foreign competition. It would also leave U.S. companies at a disadvantage in competing in emerging foreign markets.

Please consider the following points concerning LEBS:

Environmentally Sound

- 70% lower No_x emissions than conventional systems
- over 98% SO_2 removal
- reduces carbon emissions by 15%
- generates useful byproducts to several industries

Technology Leadership

- Continued use of U.S. technology and ingenuity
- maintain world leadership role by developing "state-of-the-art" equipment and services
- create strategic competitive advantage for U.S. technology

Improve Employment Picture

- create near term jobs
- promote industrial growth and long term employment

Economical Power

- provides low cost electricity to consumers, approximately $.03KW-HR
- economic benefit of spin-off jobs will be far reaching

Your continued support for the LEBS/Prairie Energy Project and the entire fossil energy budget will be greatly appreciated.

Joseph N. Darguzas
Sargent & Lundy, L.L.C.

Mr. REGULA. The committee is adjourned.
[The information follows:]

Written Testimony of Gregory Thomas, Affordable Comfort Housing Performance Association, to the House Appropriations Committee Interior Subcommittee for the Department of Energy, Energy Conservation Budget

March 15, 1996

Mr. Chairman and members of the Subcommittee, I thank you for the opportunity to provide written testimony on the fiscal year 1997 Department of Energy budget. This testimony will focus on the benefits provided to consumers and businesses by the Department of Energy's energy conservation activities.

Background

The Affordable Comfort Housing Performance Association (ACHPA) was formed in 1995 to help create a long term, consumer driven market for high quality housing performance services. Housing performance is defined as those services which increase the comfort, health and safety, efficiency, and durability of housing through the treatment of the house as a whole system.

In this respect ACHPA represents the people and business who insulate and air seal houses, install high performance HVAC equipment, seal ductwork, test the performance of housing, install ventilation systems, do housing research, manage housing and energy programs, or otherwise work to improve housing performance.

The Affordable Comfort Housing Performance Association was formed as a project of Affordable Comfort Inc., the group responsible for the ten year old Affordable Comfort Conference, the largest North American conference on residential energy efficiency and housing performance.

Over the past 20 years, a science of building performance has developed. This building science is now guiding us in the creation of new treatments for houses which suffer from poor performance, including problems with comfort, moisture, peeling paint, roof ice damage, comfort problems, and high bills.

ACHPA is working towards the development of an industry based on the diverse sources of real consumer value provided by these diagnostic treatments (treatments based on the pre and post testing of various of air leakage, duct leakage, moisture and humidity levels and other measurements). These additional sources of value include health and safety, comfort, building durability, and energy and resource efficiency. These unrecognized non-energy sources of consumer value may be an order of magnitude more significant than just the energy savings.

There is currently a significant opportunity to simultaneously create a public identity for housing performance services and support the continued development of a contractor infrastructure capable of selling and providing high value housing performance services. The Department of Energy's focus on technology deployment significantly supports this effort by focusing consumer attention and providing new tools and treatments for use by contractors. Because of the low levels of consumer understanding of the potential benefits, housing performance contractors currently spend significant time and money educating customers prior to making a sale.

Existing Homes Programs

The largest potential market for contractors is the existing housing market. The following initiatives contribute significantly to the development of consumer driven investment in improving the performance of our nation's housing.

Technology Development

ACHPA supports the Department of Energy's efforts to develop new efficiency technologies which can benefit the performance of our nation's housing. For example, efforts by the Department to create and commercialize a system for cost effectively sealing residential ductwork deserve attention. This technology has the potential to save considerable energy and should appeal to a broad cross section of homeowners and landlords.

Such technologies provide energy benefits while addressing other non-energy concerns of consumers. By combining energy efficiency with health and safety, building durability and comfort, we can create products and services that will stimulate significant consumer investment in energy efficiency while supporting the economic and strategic benefits of energy efficiency.

Weatherization

The Low Income Weatherization Program provides benefits beyond significantly reducing fuel bills and improving our nation's low income housing stock. Weatherization has provided a significant test bed for the development and field testing of housing performance services. In their effort to continually improve the benefits of the program, Weatherization grantees and subgrantees have developed an infrastructure of trained contractors. Weatherization has also increased local awareness of the potential benefits of housing performance services. Sustained levels of funding for Weatherization are necessary to continue have these market transformation impacts.

Affordable Homes Programs

Affordable Homes programs increase the comfort, health and safety, efficiency, and durability of our low income housing stock. When local rehab groups and housing authorities understand how to improve their housing stock, they also gain non-energy benefits. Contractors that have invested in the training necessary to perform the necessary improvements also benefit as demand for their services increases. ACHPA contractors in various areas have targeted local housing groups and public housing official for education and have been successful in changing specifications to much higher levels of performance. Having the Department of Energy's support in this process, as a third party endorser, greatly increases the chances that this message will be heard. ACHPA members typically engage in this process for profits, but our nation benefits from the reduced costs and improved performance.

Market Transformation in Home Sales

Energy ratings allow home owners and home purchasers to better select efficient housing, and allow the purchaser of housing performance improvements to recoup some or all of the cost of improvement upon re-sale. This improves the ability of contractors to sell improvements. ACHPA supports the measurement and rating of the actual performance of housing including such factors as air leakage and duct leakage. Measurement of the actual level of improvement provides a quality control check and enhances long term markets for housing performance services.

Financing

Lack of readily available appropriate financing is a major barrier to consumer investments in housing performance. ACHPA particularly supports financing programs that support contractors who measurably improve the performance of our housing stock.

Consumer Education

Efforts by the Department that promote consumer awareness of the savings potential and the non-energy benefits of housing performance services should be continued. These efforts reduce the sales cost of the local housing performance contractor, who currently spends significant amounts of time and money educating each customer prior to and during the sale. Marketing efforts that support the delivery of comprehensive services should be emphasized. These services provided the highest level of measurable consumer benefit, successfully combining energy and non-energy benefits.

TESTIMONY

OF

DR. DENNIS M. BROWN

TECHNICAL MANAGER-HYDROCARBONS

AIR PRODUCTS AND CHEMICALS, INC.

SUBMITTED TO THE

UNITED STATES HOUSE OF REPRESENTATIVES

HOUSE COMMITTEE ON APPROPRIATIONS

SUBCOMMITTEE ON INTERIOR

14 MARCH 1996

I strongly encourage the Subcommittee to provide a $5.4 million FY 1997 appropriation for the Department of Energy (DOE) LaPorte, Texas facility. This appropriation would resume facility operations and provide for supporting research and development. LaPorte's role in the emerging clean energy area goes beyond the initial purpose of producing fuels from coal through indirect liquefaction.

The LaPorte, Texas, Alternative Fuels Development Unit is the centerpiece of the Indirect Liquefaction Program. Its original purpose and subsequent successful operation is to provide the proof-of-concept (POC) testing necessary for industry to assess scale-up and commercialization potential for the indirect production of liquids from coal. Indirect liquefaction involves first the production of a synthesis gas from coal and then the subsequent conversion of that gas to valuable liquid fuels and chemicals. Since 1985, Congress and the Department of Energy have invested over $25 million to build and maintain LaPorte as a state-of-the-art facility for synthesis gas conversion.

To some, the original LaPorte mission has diminished in importance as future oil price projections continue to hover around $20-25 per barrel, although there is renewed concern about increasing reliance upon imported oil and its national security and balance of payments impacts. What is little known is the current and potential activities conducted at LaPorte that strongly support the rapidly emerging markets for producing inexpensive synthesis gas and associated hydrocarbon liquids derived from natural gas, renewables, waste gas streams, and other environmentally disadvantaged feedstocks. This new, growing role for LaPorte should be carefully considered within the overall DOE fossil energy appropriation.

From its inception in 1983 through 1990, the LaPorte unit was used to develop the Liquid Phase Methanol (LPMEOH™) technology. This program was aimed at converting carbon-rich synthesis gas, such as that derived from coal or from waste materials such as petroleum coke or bottom-of-the-barrel residual oil, to methanol. This application has appeal both for the power and the refinery processing industries where coproduction of electric power and methanol, for peak power shaving, or as a chemical feedstock, makes strong economic sense. With support from Chem Systems, the Electric Power Research Institute, and Air Products, DOE pioneered the LPMEOH™ process introducing first-of-a-kind technology that successfully converted carbon-rich synthesis gas into methanol under economically attractive conditions. Success at LaPorte led to a proposal and subsequent award under the Clean Coal Technology Program. The LPMEOH™ process demonstration groundbreaking ceremony took place on October 16, 1995 at Eastman Chemical's Kingsport, Tennessee facility, and start-up is scheduled for December 1996.

Significantly, a growing number of energy companies are now working with DOE and Air Products to develop efficient processes for converting these environmentally disadvantaged feedstocks, such as petroleum coke, to methanol for use in MTBE and to other clean burning fuel additives. These activities would not be happening if the opportunity for operations at the LaPorte developmental scale had not existed. Bench-scale experiments alone are insufficient for commercial guarantees of performance.

A large number of industrial companies have an interest in feedstocks with more immediate application than coal. Natural gas, renewables such as biomass, and bottom-of-the-barrel wastes such as petroleum coke and resid, can all be converted to synthesis gas in today's modern, clean and efficient gasification units. The same LaPorte liquid phase approach can then be tailored for use with each feedstock to produce a gas stream to provide optimum conversion and product selectivity. LaPorte has seen a number of successful demonstrations of important technologies including the production of hydrogen from synthesis gas, and significantly, the generation of dimethyl ether (DME) chemical from synthesis gas through a one-step process. DME is viewed in the industry as a valuable feedstock and was proposed in 1995 as a clean burning alternative diesel fuel by Amoco. Congress should take pride in the fact that as a direct result of its funding for LaPorte, it was possible for DOE to propose DME as an additive in the formulation of clean burning gasoline and to subsequently demonstrate the one-step DME production process at LaPorte in 1991.

Continued LaPorte funding also enables the production of clean hydrocarbon fuels using the Fischer-Tropsch technology via the Liquid Phase approach. Shell Oil, along with UOP, Statoil, and Exxon, participated in operations at LaPorte in 1992, again in 1994, and expect to return once more in the fall of 1996. Once again, these companies are interested in the conversion of natural gas to fuels rather than the conversion of coal, and came to LaPorte because of its unique capabilities. However, the original mission of LaPorte can still be achieved since the technology developed for today's feedstocks will be equally applicable in the future when coal conversion to fuels may become necessary. The existence and resources of the LaPorte unit are the key reasons why private sector companies have committed to pooling their financial and technical capabilities to test new routes to cleaner fuels. Private sector funding to date for LaPorte operations is almost $6 million.

Further down the road, LaPorte will lend itself conveniently to another important development in the production of low cost liquid fuels. Production of synthesis gas alone can represent well over 50% of final product cost and recently there has been considerable research underway to reduce this component by the use of selective high temperature membranes. These materials conveniently allow efficient oxygen separation from air which in turn can lead to major reductions in the cost of producing synthesis gas. DOE is supporting this work which today is at the laboratory stage. The necessary large scale demonstrations which will follow in the next few years could most conveniently be accommodated at the LaPorte site where the infrastructure is already in place for such demonstrations. The synthesis gas generated could then be used in conjunction with the syngas conversion equipment already in place allowing the complete step by step demonstration of fuels production from raw material.

DOE's Alternative Fuels Development Unit at LaPorte is a national resource that can be cost-effectively used to test proof-of-concept approaches for producing clean fuels and high value additives via synthesis gas produced not only from coal, but also from natural gas, renewables, and environmentally disadvantaged feedstocks such as petroleum coke or bottom-of-the-barrel residual oil. In general, Congress is to be commended for its foresight and its past support over the years for LaPorte.

In FY96, however, funding constraints led to a total curtailment of new financial support for its continued operation, although some research activities are being conducted. Some of these activities look promising.

With the new focus on converting process wastes and natural gas to clean fuels, which will lend itself readily to coal in the future, and with future opportunities to demonstrate dramatic savings in syngas generation costs, it is our opinion that the Subcommittee reconsider its position on terminating proof-of-concept testing at LaPorte. I request that funding of $5.4 million, an amount in line with the yearly average dollars needed for facility operations and supporting research be restored in the FY97 appropriation.

American Electric Power
1 Riverside Plaza
Columbus, OH 43215 2373

AEP
AMERICAN
ELECTRIC
POWER

The Honorable Ralph Regula
Chairman
Subcommittee on Interior and Related Agencies
Committee on Appropriations
United States House of Representatives
B-308 Rayburn House Office Building
Washington, D.C. 20515

March 5, 1996

mes J. Markowsky, Ph.D.
ecutive Vice President
wer Generation
14 223 1200

Dear Mr. Chairman:

Subject: Appropriations Allocations for Fiscal Year 1997

On behalf of American Electric Power, one of our nation's largest investor-owned utilities and an active participant in the Clean Coal Technology Program, I urge the Subcommittee to continue its support for the Clean Coal Technology Program during consideration of appropriations allocations for fiscal year 1997.

The Clean Coal Technology Program is currently at a transition point. The program continues to successfully demonstrate several economic and environmentally superior technologies such as Pressurized Fluidized Bed Combustion, Atmospheric Fluidized Bed Combustion, Integrated Gasification Combined Cycle, and several effective flue-gas clean up technologies. As of the end of 1995, twenty-five of the Clean Coal Technology projects under contract with the Department of Energy were constructed and successfully operated. Most of the remaining Clean Coal Technology projects are expected to complete the mission of the program by enhancing the commercial viability of advanced generation technologies, which are expected to have the greatest impact on the economic, efficient, and environmentally superior use of coal.

It is in the national interest to maintain a multi-fuel energy mix for the generation of electricity. Clean Coal Technologies, being proven with the support of the Clean Coal Technology Program, will allow coal to remain an important component of our future generation mix.

The Subcommittee on Interior and Related Agencies of the Committee on Appropriations has supported the Clean Coal Technology Program since its inception in 1986. As we near the end of the program, I would encourage the continued support so that the final projects in the program may come to fruition and the benefits of these important technologies can be realized. The continued support of the program will also protect the gains made with Clean Coal Technologies to date so that they will be positioned to serve the marketplace in the long term when their advantages can benefit our nation and our energy security.

Thank you for your consideration in this very important matter.

Sincerely,

James J. Markowsky, Ph.D.

STATEMENT OF
THE AMERICAN GAS ASSOCIATION
AND THE
NATURAL GAS INDUSTRY'S RESEARCH, DEVELOPMENT & DEMONSTRATION INITIATIVE
SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES
APPROPRIATIONS COMMITTEE
U.S. HOUSE OF REPRESENTATIVES
FY 1997 DEPARTMENT OF ENERGY RD&D BUDGET

Mr. Chairman and Members of the Subcommittee:

The Gas Industry RD&D Initiative is a group of 37 gas companies and 12 research and trade organizations formed in 1989 specifically to address issues affecting accelerated natural gas technology development. The Initiative works closely with the American Gas Association (A.G.A.), a national trade association composed of some 300 natural gas utilities, pipeline and marketing and gathering companies in North America, which together account for more than 90 percent of the natural gas delivered in the United States. We appreciate this opportunity to present our views on natural gas-related research, development and demonstration (RD&D) sponsored by the United States Department of Energy (DOE).

The gas industry recognizes the fiscal restraints imposed on this Committee and wants to work with the members of this Subcommittee to meet our budget goals while ensuring technological advancement and economic growth for U.S. industry. The role of the RD&D Initiative is to work cooperatively with the federal government, identifying and advancing the natural gas industry's highest priority technologies and programs. Particularly in this era of downsizing, where there is heavy competition for limited federal dollars, choices must be made. It only makes sense to expend limited resources on programs which are technologically feasible and cost competitive, promote economic growth, increase energy security, and enhance environmental stewardship. Natural gas technologies rise above other fuel choices when compared on their merits in light of these criteria.

DOE's budget historically has been weighted towards energy sources other than natural gas. DOE's FY 96 RD&D request for natural gas was $267.5 million. The Department's total FY97 RD&D request is $6.4 billion while the request for natural gas related RD&D is down to approximately $192 million. Yet, natural gas supplies about one quarter of America's energy needs and is projected to be even higher by the year 2010.

In years past, as today, the natural gas industry has proven to be a strong partner. Last year for example, the Gas Research Institute and gas companies invested $250 million in cost-share contributions. Furthermore, related manufacturers and producers accounted for an additional $400 million.

The natural gas industry has a great deal to be proud of and much to look forward to. Total natural gas use in the United States grew 30 percent between 1986 and 1994. This year our industry stands to exceed its all-time high for gas consumption of 22.7 quadrillion BTUs. The industry has tightened its own belt, taking steps to ensure that our operations are more efficient and price-competitive. In fact, in 1984 the gas industry served 49 million meters with 221,200 workers, while in 1994, the gas industry served 58 million meters employing only 187,300 workers. These efficiencies have been realized, in no small part, because of technological advances across the entire industry.

The following are specific program areas where federal funding will provide benefits to the national economy, ensure energy security, and promote environmental quality. Our industry has worked closely with the Administration and is generally supportive of its FY97 request. Where A.G.A. disagrees with the specific program directions or line items within the FY97 request this testimony will offer an alternative approach. A.G.A. is specifically seeking funding in excess of DOE's FY97 request in the following programs: the Carrier GAX partnership, desiccant development, the accelerated development of on-board storage systems for natural gas vehicles (NGVs), and medium- and heavy-duty engine applications for NGVs.

I. NATURAL GAS HEATING & COOLING

The RD&D Initiative has identified natural gas cooling as one of the most seriously under-funded natural gas related research areas at DOE. In the residential and commercial sectors, space conditioning (heating and cooling) represents the largest single use of energy. In 1994, in the new home heating market, natural gas was the choice of 65 percent of all new homes -- the highest level in history. 53 percent of the residences in this country use natural gas to heat their homes and water, cook, and dry clothes. In addition, more than 200,000 home owners converted to natural gas in 1994, primarily converting from electricity. When one combines the number of home owners converting to natural gas with the number of new homes built with natural gas appliances, we find that nearly 1 million new customers chose natural gas last year.

A 1995 Oak Ridge National Laboratory study estimated a multi-billion dollar domestic and international market for natural gas cooling equipment, creating a net 270,000 jobs from 1996-2010. Advanced natural gas cooling equipment is energy efficient and contributes to the effective utilization of this country's multi-billion dollar electric and natural gas infrastructure. Gas cooling accomplishes this through peak-shaving and valley-filling of the customers' energy demand curve.

A.G.A. and DOE have worked cooperatively with industry partners such as York International on the Triathlon, America's most efficient air-sourced heating and cooling system and Carrier Corporation, on the GAX heat pump partnership. The natural gas industry, along with Carrier Corporation, has raised $10 million to support the GAX partnership. A.G.A. would like this Subcommittee to add $1 million to DOE's FY97 request for accelerated GAX development.

We are particularly concerned this year with the continuation of the desiccant program, initiated by Congress in FY95. Desiccant technologies have emerged as a leading candidate to solve air quality problems and provide economic efficiency today and in the future. Desiccant technologies utilize no HCFCs (currently one of the most widely distributed black market products coming into the United States from abroad). Desiccants remove the moisture imbedded in ventilation air and provide a healthy and comfortable indoor environment more efficiently and economically than many conventional means. Again, this program was initiated by Congress in FY95 at the $2.0 million level and was envisioned as a three year, $2.0 million a year program. DOE did not request any funding for the desiccant program in FY96 despite strong objections from industry. DOE's FY97 request for desiccants is $1 million. A.G.A. would like to see this Subcommittee to add $3 million to DOE's FY97 request, rendering the desiccant program whole and comporting with the desire of industry and the intention of Congress.

II. NATURAL GAS VEHICLES PROGRAMS

Today, the U.S. imports over 50 percent of the oil it consumes. EIA projects that within a decade U.S. imports will exceed 60 percent. The Persian Gulf, with two-thirds of the world's oil reserves, is projected to supply more than three-fourths of the growth in world oil exports. While many sectors of the economy have succeeded in substantially reducing their dependence on oil, such as electric utilities, the transportation sector remains 98 percent reliant on petroleum. Despite improvements in fuel efficiency, annual growth in vehicle miles traveled, has rendered the transportation sector increasingly dependent of foreign oil.

DOE has played an important role in advancing the quality of alternative fuel vehicle (AFV) options through its research and development projects. DOE's focus is on improving engine efficiency and extending the driving range of NGVs by increasing the on-board storage capacity of natural gas cylinders. A.G.A. is extremely supportive of, and would like to see even more funding for, DOE's work in this area, as well as, increased funding for medium- and heavy-duty engine applications. These markets offer the opportunity to offset the use of large amounts of petroleum and diesel products. DOE is a partner in funding several emissions programs to certify medium and heavy duty engines, including those used in locomotives.

The federal government's acquisition of AFVs, along with state fuel provider fleets, will enable the automobile manufacturers to begin to achieve efficiencies of scale, resulting in more economically attractive vehicles for businesses and consumers. DOE's Clean Cities program, which already has enlisted the commitments of stakeholders in 43 states, also has enormous potential to leverage infrastructure and vehicle commitments in order to rapidly accelerate the introduction of AFVs, including NGVs. DOE's role in coordinating other agency acquisitions of AFVs and in facilitating the government's compliance with EPAct purchase requirements has been essential.

III. TURBINES/HEAT ENGINES

DOE's Advanced Turbine Systems program is a model industry/federal government partnership to develop more efficient turbines for power generation in utility and industrial applications. A.G.A. is especially supportive DOE's Office of Energy Efficiency and Renewable Energy's funding increase for accelerated development of smaller turbines.

Over the next decade, the demand for new power generation is expected to create a global market worth $1 trillion. Most estimates predict gas-fired combined-cycle and combustion turbine technologies will be used in one-third of all generating plant expansions throughout the world. Keeping U.S. turbine manufacturers on the forefront of turbine system technology will preserve and expand U.S. jobs by enabling U.S. companies to increase exports to a rapidly growing world market.

IV. NATURAL GAS FUEL CELL PROGRAMS

DOE has contributed considerable resources toward the development of several types of fuel cells for both the electric power generation and transportation markets. The RD&D Initiative particularly supports DOE's stationary fuel cell programs because of the potential for high electrical efficiency and the ability to cogenerate heat in utility, industrial, and commercial applications. So attractive is the future market for fuel cells that the Japanese government made a twenty year commitment to develop this technology beginning in 1978 with their "Moonlight Project". As part of this continuing commitment, Japanese government contributions to fuel cell development in 1995 exceeded $50 million (U.S.). At the present time, Japanese companies are less than five years behind U.S. companies in this technology. Sustained federal support might well give America the lion's share of a multi-billion dollar annual global market.

A.G.A. believes that the U.S. government has a legitimate role to play in developing this future market; first, by continuing to provide support to the U.S. developers for RD&D, and second, by early procurement of market entry fuel cells for use at federal facilities. As a clear sign of its commitment to this technology, the gas industry continues to provide support for U.S. developers both by the direct procurement of pre-commercial and market entry phosphoric acid fuel cells units and by providing funding and cost-sharing support for continued RD&D of high temperature fuel cell technologies.

V. INDUSTRIAL SYSTEMS PROGRAMS

Industrial energy consumption is expected to increase by nine percent between 1994 and 2010. Overall natural gas use by industrial enterprises (including cogenerators) is projected to increase a total of 12 percent by 2010. Most of the growth in natural gas use is expected to occur in traditional heat and steam applications. To meet the energy consumption increase, DOE must focus on RD&D programs that can meet this demand in a cost-effective way.

DOE's Industries of the Future Program is working with seven material and process industries that have been identified as the most energy intensive: glass, aluminum, chemicals, petroleum refining, steel, forest and paper products, and metal casting, with funding provided as well for important "crosscutting" technologies. Members from the natural gas industry have entered into cost-shared partnerships with DOE in at least three of these areas, glass, petroleum refining, and aluminum. An example of this DOE/industry competitive partnership is the Forced Internal Recirculation ("FIR") burner technology for significantly lowering NOx emissions and improving energy efficiency in a broad range of industrial boilers. A.G.A. supports DOE's partnership with the Institute of Gas Technology, and its request of $450,000 for this project.

VI. RESIDENTIAL/COMMERCIAL APPLIANCE PROGRAMS

Natural gas appliances have strong customer acceptance in both the residential and commercial markets. In 1994, over 11 million residential natural gas appliances were shipped, supplying the 60 percent of all U.S. homes that use natural gas. Natural gas is similarly accepted in the commercial sector, with roughly 58 percent of all commercial buildings in the U.S. using natural gas. Natural gas technologies are available in a wide array of efficiencies across all end uses. Customers continue to choose natural gas appliances for their reliability and economical operation. The evolution of residential and commercial appliances, in terms of efficiency, has occurred as a result of the commitment of U.S. manufacturers and DOE through its RD&D programs. Despite, strong support from A.G.A. and appliance manufacturers, this program, especially as related to natural gas appliances, has remains chronically underfunded.

Adjunct to the appliance RD&D program is DOE's appliance efficiency standards program. A.G.A., along with other energy efficiency and environmental groups, has been strenuously urging DOE to utilize total resource efficiency calculations. Unfortunately, DOE continues to pursue a path contrary to the interests of A.G.A., the Natural Gas RD&D Initiative, and the nation. Appliance programs that reflect total resource use will result in consumers' purchasing more efficient products.

VII. NATURAL GAS SUPPLY

For the natural gas industry to increase its economic productivity, it needs to be more efficient and reduce operating costs by using cost-effective advanced exploration and production technologies. All estimates predict gas consumption will increase significantly over the next fifteen years. To maintain this growing demand there must be ample supplies of natural gas. Historically, technological progress has expanded the economically recoverable gas resource base and reduced effective exploration and development costs. The challenge for the Office of Fossil Energy is to advance technology that makes this gas available to the end-user at an economically competitive cost and in an environmentally responsible manner.

Natural gas supply program initiatives should focus on developing technologies for enhanced production from existing wells as well as exploration and production technologies for developing new sources of natural gas. DOE also has conducted important research to provide more effective ways of disposing of wastes produced during natural gas drilling and processing operations. A.G.A. supports DOE's supply program and hopes that its budgets will be maintained.

CONCLUSION

U.S. Industries compete in a global economy where our major competitors, such as Japan and Germany, provide substantial assistance in RD&D and commercialization. The federal investment would be wasted if the federal government performed basic research for natural gas technologies but did not follow through on applied research; allowing foreign governments to step in and make billions of dollars off U.S. developed technologies.

New natural gas technologies can provide substantial benefits to the Nation. Cleaner air, enhanced energy security, energy efficiency, job creation, and improvements in U.S. international competitiveness are all byproducts of prudent spending of federal research dollars.

Thank you for the opportunity to present our views.

Statement
of the

AMERICAN PUBLIC POWER ASSOCIATION

Submitted to

COMMITTEE ON APPROPRIATIONS,
SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES,
U.S. HOUSE OF REPRESENTATIVES

April 9, 1996

The American Public Power Association (APPA) is the service organization representing the interests of the more than 2,000 municipal and other state and locally owned utilities throughout the United States. Collectively, public power utilities deliver electric energy to one of every seven U.S. electric consumers (about 35 million people) serving some of the nation's largest cities. The majority of APPA's member systems are located in small and medium-sized communities in every state except Hawaii.

APPA member systems appreciate the particularly difficult task faced by this Subcommittee as it moves forward on FY 1997 appropriations. We recognize that reduced allocations as well as continuing negotiations over FY 1996 interior appropriations complicate your work. APPA appreciates the opportunity to submit this statement concerning FY 1997 appropriations. Our focus will be on U.S. Department of Energy (DOE) programs within this Subcommittee's jurisdiction.

I. DOE Energy Efficiency Programs

APPA supports the Administration's emphasis on DOE energy efficiency programs in its funding request for FY 1997. We ask that this Subcommittee ensure these important programs continue to be among the options available to our nation's electric utilities as they strive to meet the increased competitive and environmental demands placed on them by the marketplace and society.

The Energy Policy Act of 1992 (EPAct) contains many provisions designed to improve energy efficiency. However, the efficiency targets contemplated by EPAct can only be realized if Congress provides funds to carry forward these important authorized programs. DOE efficiency programs are largely voluntary ones designed to spur development of new energy-efficient technology, work with the private sector to deploy that technology and foster energy efficiency activities in the states. They help maximize the overall progress made toward achieving a competitive, high-growth economy for our nation while maintaining the kind of environmental quality we all desire for the future.

A. Electric Vehicles (EV)

EVs provide multiple environmental benefits, with special emphasis on reduced tailpipe emissions and ozone formation in urban areas. Congress has recognized these potential advantages as well as the possibility for EVs to diversify the sources of energy used in the transportation sector, decreasing our nation's dependence on foreign oil imports and improving our trade balance. Continued funds for research toward improvements in this technology are needed.

APPA urges the Subcommittee to maintain support for battery research and development through the U.S. Advanced Battery Consortium (USABC). This research has produced battery packs that have been installed into EVs at utilities and testing facilities of U.S. automobile companies. For FY 1997, USABC will require approximately $23 million in federal funds. We encourage you to consider the success of this model public/private partnership as you deliberate FY 1997 appropriations.

For FY 1996 the Site Operator Users Task Force Program (SOUTF) received $2.5 million. We encourage the Subcommittee to retain this funding level for FY 1997. SOUTF is a joint effort by government, utilities, and educational institutions featuring cost sharing by non-federal participants. It tests and evaluates near term electric vehicles and associated infrastructure in realistic operating environments. Vehicles acquired through the SOUTF program provide valuable information to manufacturers and users. The program also assists in demonstrating the market opportunities for electric vehicles.

B. Community and Building Technologies

APPA supports the Administration's request of $324 million to restore previous reductions to these energy partnership programs. Among them are *Rebuild America*, designed to accelerate energy efficiency improvements in existing commercial and multi-family buildings, and DOE's Energy Partnerships for Affordable Homes Program, a collaboration of public and non-public groups working to make public and private housing more energy efficient and affordable.

DOE can play a facilitating role in helping bring new technologies and standards to market. The Department's role should be to assist potential buyers and sellers of new technologies in reaching their own agreements about ways in which this might be done. In this manner, government does not place itself in the position of choosing winners and losers, but instead acts only as a catalyst. Examples of valuable DOE efforts in this regard include the Technology Introduction Partnerships (TIPS) program and Motor Challenge.

TIPS, in particular, has been an important one for APPA member systems. Working with the Consortium for Energy Efficiency (CEE), a group of over 40 gas and electric utilities, the New York Power Authority has helped create a market for super-efficient, apartment-sized refrigerators for public housing agencies by using aggregated high volume purchasing. Bonneville Power Administration (BPA) and other utilities in the Pacific Northwest have joined CEE in organizing a similar venture to secure compact fluorescent lamps. The Motor Challenge program is a voluntary partnership between DOE and industry designed to promote adoption of motors and motor-driven equipment that increase energy efficiency, enhance productivity and improve environmental quality. By the year 2000 it is estimated Motor Challenge will generate energy cost savings of $1.2 billion and electricity savings of 25 billion kWh.

Building Codes and Standards--EPAct also requires each state to certify that it has reviewed its residential and commercial building codes to determine whether they meet energy efficiency targets. DOE is providing important technical assistance to encourage states to adopt such codes. This work is well underway. Over 20 states now meet EPAct requirements with respect to both their residential and commercial codes. We support the Administration's request and ask that $23.8 million be provided to continue this program. Of this amount, $15.8 million would be used for the building standards and guidelines program and $8 million for evaluating lighting and appliance standards. Furthermore, APPA would like to encourage DOE to take a collaborative approach to standard setting, involving affected industry participants when considering changes.

Community Energy Systems---District heating and cooling systems act as community energy systems by transporting waste energy (from power plants, industrial processes and natural sources) to buildings in the community. Funding for the DOE district heating and cooling program ended in 1993 --- a short-sighted decision given the benefits of these integrated systems relative to increased energy efficiency, cleaner urban air and reduced emissions of greenhouse gasses and ozone-depleting refrigerants. APPA recommends the Subcommittee, approve $2 million to facilitate development of these systems that provide information and technical assistance to local communities, which include APPA member systems in Burlington, VT; Jamestown, NY; Fairbanks, AK; Holyoke, MA , and Lansing, MI.

Municipal and Community Energy Management---This program, within the Office of Building Technology, provides funding to municipalities for conducting a variety of projects that address energy-related areas of greatest concern on a local level. APPA recommends this program, operated by the Urban Consortium Energy Task Force (UCETF), receive $2 million. UCETF works with local governments to improve their energy management capabilities and encourage energy efficiency and environmental quality. Currently 21 jurisdictions are represented on UCETF including: Albuquerque, NM.; Austin, TX; Chicago, IL; Columbus, OH; Dade County, FL; Denver, CO; Hennepin County, MN; Houston, TX; Long Beach, CA; Memphis, TN; Montgomery County, MD; Norfolk, VA; Orange County, FL; Philadelphia, PA; Phoenix, AZ; Portland, OR; San Diego, CA; San Francisco, CA; San Jose, CA; Seattle, WA, and Washington, D.C.

Weatherization Assistance Program---APPA wholeheartedly supports the Administration's budget request of $155.5 million for weatherization assistance, especially important to the working poor, elderly and disabled. The program helps more than 100,000 residents annually. Weatherization programs have the additional benefit of stimulating economic growth by increasing disposable income and creating jobs in the service sector. The DOE Weatherization Assistance Program has been shown to be especially effective at helping low income citizens to afford their energy bills and at the same time reduce their energy usage. The funding increases requested for FY 1997 should be provided to this valuable program to help alleviate the multi-year backlog of weatherization work requested locally. The 47 percent cut in FY1996 was devastating to the poor, especially in light of reductions in the Low Income Home Energy Assistance Program (LIHEAP), which had shifted funds to weatherization.

State Energy Conservation Program---State energy offices work on nearly every energy efficiency issue. They encourage technology development, renewable energy, alternative fuels, energy emergency preparedness, energy facility siting, recycling, transportation efficiency programs, energy conservation and economic development, among other activities. State energy offices have been extremely successful in identifying the needs of local communities, businesses and consumers, and funding appropriate efforts to effectively transfer technology to constituents. With increased devolution of responsibilities to the states, this program offers the ideal combination of state-level implementation on a flexible basis with federal support. We ask that this Subcommittee favorably consider the Administration's request of $35 million for the State Energy Conservation Program. APPA also asks the Subcommittee to reconsider the decision made by Congress in eliminating the Institutional Conservation Program (ICP), which encouraged energy efficiency programs at schools and hospitals, in the FY 1996 conference report.

II. DOE Fossil Energy Research and Development Programs

A. Fuel Cells--Fuel cells have captured the interest of government and industry alike. Their modularity, high efficiency and negligible emissions of smog and acid rain precursors make fuel cells an important growth area deserving national priority. A consortium, including APPA member systems, along with the National Rural Electric Cooperative Association (NRECA), the Electric Power Research Institute (EPRI) and DOE, is co-sponsoring carbonate fuel cell research, testing and the first utility-scale demonstrations of carbonate fuel cell power plants. A 2-MW demonstration is located at Santa Clara, CA, where plant startup has just commenced. A second molten carbonate 250-kW demonstration also is underway at a Naval facility at Miramar, CA. These projects are progressing nicely with the latter expecting to start-up in late 1996.

APPA has been a major supporter of molten carbonate fuel cell R&D, participating in most of the cost-shared contracts between the two developers and DOE. We are very concerned that the important immediate steps ahead to commercialize these plants are in danger because funds provided in the Administration's request would be insufficient to sustain the aggressive commercialization plans of these U.S. companies. APPA's member systems have an important stake in the success of the demonstrations and the commercial enterprise to follow. As such, we ask this Subcommittee to carefully consider the DOE Office of Fossil Energy's Molten Carbonate Fuel Cell account. It is important to maintain the on-going pace of progress on these projects. The current request provides only $15.8 million for each contract (a total of $31.6 million) while the two separate contracts with DOE call for approximately $40 million in FY 1997, a $9 million shortfall.

B. Advanced Gas Turbine Program--DOE's Advanced Turbine Systems (ATS) Program is a model public/non-public partnership to develop more efficient, low-emission turbines for power generation in utility and industrial applications. This high-value program has been strongly endorsed by the utility, natural gas, oil, and electric service industries as well as industrial users. To keep the program on track toward its long-range goals, which include a reduction of liquid and gaseous fossil fuel consumption by 15 percent, a funding level of $155 million is recommended for DOE's Office of Industrial Technologies. An additional $35 million is sought for the industrial ATS program and $10.5 million for the materials program. APPA supports these requested funding levels. The overall objective of increasing efficiency over 60 percent provides further potential for major reductions in fuel consumption and lower electricity rates.

III. Energy Information Administration (EIA)

APPA asks this Subcommittee to carefully review the Administration's request, which would result in an additional 8.6 percent reduction in spending at EIA during FY 1997. We are concerned that this level of funding is inadequate to enable EIA to continue its important role in data collection and dissemination. (The request would mean a reduction of 22 percent below the FY 1995 appropriation.) APPA routinely uses valuable data published by EIA to respond to inquiries from our members, the news media, state and local officials, Congressional offices and regulatory bodies. Many of our standard member services are based on EIA data. Over the years EIA has consistently made improvements in the quality of the data it collects, and has kept up with the electric utility industry's changing needs. In particular, with increasing competitiveness in the electric utility industry, it is critical that utilities, government, regulators and the public all have access to reliable data in order to monitor pricing and structural changes in the electric utility industry and the effects of these changes on competition so as to accurately determine what regulations and safeguards are needed. EIA's collection of sales, generation, bulk power transactions and financial data for individual utilities addresses these competition issues.

Again, thank you for granting APPA the opportunity to express its views on important FY 1997 spending programs.

APPA/bgw

The Association of American Universities, on behalf of the American Council on Education and National Association of State Universities and Land-Grant Colleges, appreciates this opportunity to submit for the record testimony in support of the fiscal year 1997 budget for the National Endowment for the Humanities (NEH).

Through our combined memberships, our associations represent all of the public and private research universities across the country. The colleges and universities represented by our associations educate large numbers of the nation's students and conduct the bulk of the country's basic research.

We recognize the extraordinarily tight fiscal constraints from which the Interior Appropriations Subcommittee must operate this year. In fiscal year 1996, the NEH budget is expected to be reduced by approximately 36 percent, a cut well beyond that of most federal agencies. Because of the positive contribution that NEH makes to our society, we are concerned about the impact of this cut. Therefore, we support the Administration's reasonable fiscal year 1997 budget request of $136 million, which would allow the agency to recover some ground lost last year, but would still be a 21 percent reduction from the fiscal year 1995 funding level.

NEH-supported projects are important to our entire nation. They affect school children, teachers, scholars and the American citizenry. They aid scholarship and research in the humanities, help improve humanities education, and foster across the nation an increased interest in the humanities and American culture.

Much of the NEH's work is carried out at our nation's colleges and universities—from the smallest community colleges through the largest research institutions. Grants to colleges and universities for research and other activities help preserve America's heritage, bring the humanities to the American people, reinvigorate high school and college teachers, and expand knowledge.

The fiscal year 1996 budget cuts at NEH will greatly constrain the productivity of the NEH/university partnership, which has existed for almost thirty years. NEH-funded grants of national significance may not be renewed and future projects may no longer receive NEH support. Not only will important humanities projects not be completed but there also will be a much less likelihood of receiving leveraged private, state and local funds.

NEH already has announced a major restructuring that has resulted in the reduction of NEH's divisions from six to three, a reduction in programs from thirty-one to nine, as well as the laying off of almost 40 percent of the NEH staff. Among the programs that will be eliminated are several devoted to helping young scholars establish their careers. This includes the dissertation grant program, which provides one year of dissertation support for the most promising Ph.D. students in the humanities, enabling them to complete their degree during what is the most difficult time for Ph.D. candidates to support themselves financially.

It is important to note that the 36% cut in the NEH budget will impact disproportionately on the national programs account, which will be cut by 60% in fiscal year 1996. The programs and research projects within this division of the NEH are of national importance—they include those projects that are unlikely to be funded by any individual state but that will substantially benefit the entire nation. Following are just a few examples of the types of projects which could be affected by this cut:

- A key aspect of the NEH mission is to provide support for basic scholarly research. The scholarship supported by the NEH is frequently an essential part of later, more well known humanities projects, including films and public programming. For example, a University of Nebraska NEH grant enabled scholars to edit and publish the journals of Lewis and Clark. This work was essential to the development of the popular new book by Stephen Ambrose on the journey of Lewis and Clark.

- NEH funded projects help ensure that the writings and ideas of America's founding fathers and historical figures will always be accessible. For instance, an NEH-funded Rutgers University project supports the Thomas A. Edison Papers and a University of Virginia project will provide support toward the preparation of George Washington's papers for publication in print and electronic formats.

- NEH grants help improve learning. At the Massachusetts Institute of Technology, NEH-funded projects are leading to novel multimedia and interactive approaches to learning foreign languages and cultures. An interactive video provides intermediate college students with a simulated immersion experience in Spanish speaking countries, integrating language learning and cultural information.

- Many colleges and universities host summer seminars for high school and college teachers, who are given the opportunity to study with leading scholars in their fields. In the summer of 1995, this program supported seminars and institutes attended by more than 2,600 high school and college teachers, who teach approximately 425,000 students a year. Ohio State University, for example, is the host for two seminars for high school teachers. The first focuses on improving high school teaching of Japanese, while the second is targeted on upgrading the skills of secondary school teachers of Russian. Improvements in the ability of Americans to speak Japanese and Russian is crucial in our expanding global economy.

- NEH funded grants at colleges and universities ensure that the humanities are available to the public. For instance, the University of Illinois uses NEH grants to enable thousands of community residents to participate in university-sponsored humanities projects. At one recent project, 4,000 people participated in symposia, exhibitions, and lectures focused on Jane Adam's Hull-House.

These are only a few examples of the important work that NEH supports which could be at risk in a reduced budget. NEH has become an important national resource and we believe it is in the national interest to continue funding the Endowment. Perhaps Ronald Reagan said it best when he stated during his presidency that, "our cultural institutions are an essential national resource; they must be kept strong." We very much appreciate the Subcommittee's long-standing, bipartisan, support for the NEH and we urge the Subcommittee support the $136 million budget request.

WRITTEN STATEMENT OF THE CLEAN COAL TECHNOLOGY COALITION SUBMITTED BEFORE THE SUBCOMMITTEE ON INTERIOR APPROPRIATIONS U.S. HOUSE OF REPRESENTATIVES MARCH 14, 1996

I. INTRODUCTION

This testimony concerns fiscal year 1997 funding for the Department of Energy's (DOE) Clean Coal Technology Program. This written statement is submitted on behalf of the Clean Coal Technology Coalition (CCTC or Coalition), a public/private organization of electric utilities, coal companies, technology developers, state governments, universities and others organized to encourage the development and deployment of clean coal technologies. (A membership list is attached.)

The members of the Clean Coal Technology Coalition (CCTC) understand the budgetary pressures resulting from fiscal constraints facing the federal government. However, we strongly urge the Congress to maintain the role of the federal government in supporting prudent long-term investments in quality programs and to not sacrifice these investments in our Nation's future for immediate and limited budgetary savings. We encourage the Members of the Subcommittee to recall the achievements of the Clean Coal Technology Program and to maintain a course toward completion of this highly successful Program.

The Clean Coal Technology Program (CCT Program), a jointly funded partnership between government and industry to demonstrate a new generation of innovative coal processes in a series of showcase, cost-shared demonstration projects, has been, and continues to be, an extremely successful undertaking. It is an exemplary program that has demonstrated that government and industry may form effective partnerships and make sustained progress toward long-term goals.

Last year, $200 million was rescinded by the Congress from the Program. This reduction significantly affected Program implementation and management. Another significant reduction in CCT Program funds could seriously impact the integrity of the Program. If additional funding reductions must be considered for the CCT Program, we strongly support the continuation of Program management practices which allow *market forces* (e.g., projects not viable six months ago are being successfully pursued today as a result of changes in economic circumstances) to dictate which projects continue and which might be terminated. We do *not* support the termination of projects based upon arbitrary factors, such as when a project was selected and whether it is, or is not, yet underway.

As the Subcommittee considers FY 1997 appropriations allocations, we urge your continued support for this quality program that has assisted, and will continue to assist, efforts to obtain benefits derived from clean, efficient, and economic, coal-based power generation.

II. THE CLEAN COAL TECHNOLOGY PROGRAM -- A SUCCESSFUL COOPERATIVE UNDERTAKING

In 1986, the Department of Energy established the Clean Coal Technology Program as an industry/government partnership for sharing the costs of projects that demonstrate innovative technologies for using coal in a more environmentally sound, efficient and economical manner. This program was born out of recommendations by the U.S./Canadian Special Envoys on Acid Rain and approved, and finally recommended, by former Canadian Prime Minister Brian Mulroney and President Ronald Reagan. The establishment of the CCT Program responded to the need to insure that the Nation's energy demands are met, in part, by our most abundant energy resource, coal, and done in an environmentally responsible manner that does not jeopardize the attainment of air quality standards. Clean coal technologies meet these needs.

Much of the Program's success is based upon its unique structure. First, unlike many other federal programs, the CCT Program was designed to serve a specific mission: to demonstrate a variety of clean coal technologies. Once the selected projects are completed, the program will end. Second, industry is assigned a critical role in the project selection process. Rather than select technologies, the government assists in the development of technologies chosen as most promising by industry. Third, the program contains a repayment provision. Not only do U.S. taxpayers gain the environmental, energy efficiency, national security and job creation benefits associated with the development of clean coal technologies, but when the technologies are successfully marketed, project participants are required to repay the government for federal financial support received. Finally, and most importantly, this program is a cost-shared venture. Nearly two-thirds of all Program funds have been supplied by the private sector (industry has invested $4.6 billion and the Federal government $2.7 billion in the Program).

The CCT Program has been implemented by the Department of Energy through five solicitations and currently consists of 43 showcase demonstrations that are either completed, or underway in locations across the country. Success of this public/private partnership may be measured by several factors: first, 25 of the projects (more than half) are completed or are in operation and an additional six projects are under construction; second, for every $1 invested by the federal government, private companies and states have contributed nearly $2, making the program one of the most successfully leveraged technology-development ventures managed by the U.S. Government; and third, millions of dollars worth of commercial sales of clean coal technologies have been created and hundreds of thousands of new U.S. jobs are being supported by new clean coal technology projects.

The Clean Coal Technology Program proves that government and industry can form successful and productive partnerships. In fact, in a 1994 GAO report, the CCT Program was cited as a model for public/private partnerships, "the Clean Coal Technology Program has shown that the government and the private sector can work together effectively in demonstrating new technologies."

III. THE IMPORTANCE OF COMPLETION OF THE CCT PROGRAM

The federal government plays a critical role in the CCT Program by providing "seed" funding and support for these new technologies. Government support of clean coal technologies has mitigated the high risks and costs associated with technology development and the lack of economies of scale that attends the initial demonstration of a technology. In turn, this support has increased the rate of development and deployment of clean coal technologies. Government participation, has been, and continues to be, vital to the successful and timely introduction of clean coal technologies into the marketplace.

At the inception of the Program, Congressional appropriators had the foresight to provide advance appropriated funds for the clean coal program. This innovative funding process assured the private sector that the government was a committed and reliable partner and provided the security required by industry to invest large sums of capital into this Program. To slash funding at this point would forfeit a relationship that the federal government and industry have worked hard to nurture and develop; break government's commitment to partner with industry in the 43 clean coal technology demonstration projects; and, destroy an important bond of trust.

It is vitally important that sufficient funding be provided to the CCT Program not only for the purpose of honoring government commitments, but also to provide the U.S. market with advanced technologies for future power generation needs. Adequate funding will allow the program to continue, projects to be completed, technologies to mature, and enable U.S. companies to access the potentially enormous clean coal technologies export market.

IV. CLEAN COAL TECHNOLOGIES YIELD MULTIPLE NATIONAL BENEFITS

Currently, coal is used to generate 52 percent of U.S. electricity. (This figure compares with 20 percent from nuclear; 14 percent from natural gas; 11 percent from renewables and 3 percent from oil.) According to the Energy Information Administration, coal is expected to fuel about 50 percent of U.S. electricity production through the year 2015 and coal will continue to be the primary source of electric power well into the next century, not only in this country, but for much of the world. Given these facts and projections, the United States is presented with an extraordinary opportunity to market its new, cleaner, coal-based power systems overseas which will create new U.S. jobs and help reduce the U.S. trade deficit.

Clean coal technologies allow the Nation not only to meet current and future power generation needs while utilizing our most abundant energy resource -- coal -- but also to provide that power in an environmentally sound manner. This is an important point to recognize. Without new technology, it may be difficult for generating companies to respond to increased electricity demand, comply with environmental regulations and at the same time refrain from increasing the cost of electricity production and electricity prices to consumers. Given that $200 billion from our economy goes for the purchase of electricity yearly, any economic penalty can erode U.S. competitiveness and limit economic growth.

The clean coal technologies under development have proven successful in removing and preventing emissions. The various clean coal technologies can remove 30 to 90 percent of nitrogen oxides and 50 to 99 percent of sulfur dioxides from the combustion of coal. Also, because some of these technologies are more efficient in converting coal to useful energy, significantly less CO_2 is emitted.

In addition to significant environmental benefits, CCTs already have benefitted the U.S. economy through revenue from sales and jobs creation. Upon completion of successful demonstration, clean coal technologies have begun to move into the marketplace. As of 1995, more than one-half billion dollars in sales of clean coal technologies have occurred and CCT projects have contributed to the creation of almost 3,400 domestic jobs. Also, these technologies, if successfully marketed, will be required to repay the government's contribution to the demonstration project and, indeed, funds have already been repaid to the federal government under this Program.

There also exists a significant potential to export clean coal technologies which in turn will create additional U.S. jobs. Global electricity demand, particularly in developing countries is rapidly increasing. To meet that demand, many nations will rely upon indigenous coal resources and foreign capital to finance utility projects. The National Coal Council estimates that coal capacity worldwide will nearly double over the next 30 years; 60 percent of that growth in capacity and electricity use is expected to occur in developing countries, the former Soviet Union, and in Eastern Europe. China alone is expected to add almost 15,000 megawatts of capacity annually for the next decade, and much of that power is expected to be generated from coal. The potential CCT market for new facilities and retrofit installations internationally for

1993-2010 is projected to be between $571 billion and $870 billion[1]. This market potentially is enormous for U.S. exports and if clean coal technologies are fully demonstrated, many U.S. firms could be dramatically advantaged through participation in these emerging export markets. In the base case, this would represent an average potential, in constant 1993 dollars, of $42 billion annually[2]. In terms of U.S. jobs, the Commerce Department estimates that each $1 billion in U.S. exports sustains about 20,000 American jobs.

V. CONCLUSION

The Clean Coal Technology Coalition understands the budgetary constraints faced by the federal government and respects Congressional action to consider plans to reduce federal spending. If funding cuts must be considered for the CCT Program, the Coalition urges the Subcommittee to maintain support for continuation and implementation the Clean Coal Technology Program's current management practices.

We ask that effective programs, such as the Clean Coal Technology Program, which promote and achieve multiple national goals and benefits, not be sacrificed for immediate savings. In the long-term, such actions only would result in a net loss for U.S. taxpayers from lost jobs, exports, cleaner technologies, domestic fuel security.

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[1] Resources Dynamics Corporation, *Market Potential for Clean Coal Technologies: Updated Estimates*, Report to U.S. Department of Energy, October 1, 1993.

[2] Resources Dynamics Corporation, *Market Potential for Clean Coal Technologies: Updated Estimates*, Report to U.S. Department of Energy, October 1, 1993.

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February 29, 1996

Interior Appropriations Committee
Room B, 308 Rayburn House Office Building
House of Representatives
Washington, DC 20515

RE: House Appropriations Committee Hearings on Fossil Energy Budget

Approximately 75 percent of the coal mined east of the Mississippi River is cleaned before it is burned. This cleaning varies from simple washing processes that remove large rocks extracted with the coal to state-of-the-art facilities that remove sulfur-bearing and ash-forming mineral matter. Currently, coal cleaning provides a greater reduction in sulfur emissions than all scrubbers combined. In addition, sulfur emissions reductions achieved by coal cleaning do not come at the price of increased carbon dioxide emissions as is the case with scrubbers.

A number of studies by DOE and industry document the role of cleaning in the reduction of electricity costs. By removing ash-forming minerals, cleaning increases the heating value of coal, reducing the tonnage of coal transported and burned to generate electricity. This reduction in tonnage reduces transportation costs and power production costs. The increased boiler efficiency associated with the use of cleaned coal helps utilities reduce the cost of electricity even in the face of ever increasing environmental compliance costs.

The Environmental Protection Agency is currently considering regulating the discharge of selected trace elements designated as hazardous air pollutants (HAPs). Research funded by DOE has demonstrated that coal cleaning can be used to reduce HAPs emissions. In fact, ongoing research suggests that with minor alteration currently available methods of coal cleaning can be applied to the new purpose of HAPs control at modest cost.

Since it's inception, the DOE has played a key role in the development of better methods of cleaning coal to reduce emissions and power generation costs. For example, a DOE supported technology for cleaning fine-sized coal using heavy media cyclones is featured in a recently completed cleaning facility owned by Custom Coals. The completion of this facility represents an important advancement in the use of coal cleaning for sulfur removal. A recent product of DOE's Clean Coal Technology Program is the Coal Quality Expert (CQE), a software tool that determines the complete costs of various fuel options, including coal cleaning, by seamlessly integrating the effects of fuel purchase decisions on power plant performance, emissions, and power generation costs.

Inexpensive electricity is vital to the nation's welfare, fueling the economy, creating jobs, and increasing our ability to compete internationally. At the same time, the American public desires a clean environment. Over half of our electricity is produced by burning coal and only improved coal cleaning technologies can serve the dual purposes of reducing power production costs while improving the environment.

Industry will not bear the entire cost of new technology development alone, especially during the early stages when risks are high and success uncertain. Also, many companies involved in the development of improved cleaning technologies are small and lack financial resources. DOE financial support is critical to these companies. In addition, selection for funding by DOE provides these small companies with a level of credibility that can be critical in attracting private investors.

The severe budget cuts proposed for Advanced Clean Fuels Research at the Pittsburgh Energy Technology Center are of great concern. This program funds research critical to producing cleaner, even more cost-efficient fuels from coal. The technologies developed through this program will aid United States industry, while insuring the maintenance of environmental standards. Please maintain funding for this program at least at 1995 levels.

Yours truly,

David Akers

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Testimony Regarding the U.S. Department of Energy
Energy Programs
for
Subcommittee on the Interior
# of the
Appropriations Committee
March 19, 1996

I am Jeannie Dodson-Edgars, a founder and director of DynaMetrix Corporation of Hillsboro, Oregon. Thank you for the opportunity to comment on the energy programs of the U.S. Department of Energy and its Office of Industrial Technologies. I urge you to continue funding of these energy programs that bring together multiple business and education partners to improve the global competitiveness of our U.S. industries. The energy programs that advance technology results in financially healthy industries, stable employment, improved knowledge, increased exports, and advances technological global leadership.

Last year DynaMetrix received a $1.78 million grant from U.S.DOE to research, develop, and commercialize a U.S. patent application. The product is a measurement device that will benefit the pulp and paper industry. The DynaMetrix product uses industrial computers and sensors to measure the distance between refining plates and the wear of the plates (GAP-WEAR measurement). Refiners take wood chips, pulp or recycled paper to make paper. The developed product will:

1. save 600 average megawatts of energy (the output of a typical nuclear plant)
2. decrease the need for virgin fiber to make paper
3. decrease the need for forest harvesting
4. decrease the use of chemicals in pulp making
5. increase the type and amount of paper that can be recycled to make new paper
6. improve the productivity and quality of paper making.

The American Forest and Paper Association targeted sensor and control technology as one of its six research and development priorities in its 1994 report to U.S.DOE: *Agenda 2020*. The report was developed by the Chief Technical Officers of the forest, wood, pulp and paper industry, with advice from research institutions and other organizations. Guidance was provided by the industry leadership through a committee of Chief Executive Officers. According *to Agenda 2020*, now is the time for the industry to partner with government, supplier, national laboratories, and universities to leverage all available resources to remain economically viable and globally competitive.

Our project follows the *Agenda 2020* model. It is a dynamic partnership with higher educational institutions, original equipment manufacturers, a software developer, an engineering firm, and pulp and paper manufacturers to develop, demonstrate, and commercialize a patented gap-wear sensor product for use in the pulp and paper industry. The DynaMetrix project results in a real-world product whose sales will lower the cost of pulp and paper production, and generate taxable revenues. Our grant is an investment by the American people for the economic future of our nation. Our private sector partners matched the grant funds by contributing their time and equipment.

DynaMetrix is developing the gap-wear sensor technology with research assistance from Oregon and Georgia private and public educational institutions that include Oregon Graduate Institute of Science and Technology (OGI), Hillsboro, Oregon, the Herty Foundation, Savannah, Georgia, the Institute of Paper Science and Technology (IPST), Atlanta, Georgia, and Georgia Institute of Technology, Center for High Yield Pulp Science (CHYPS), Atlanta, Georgia. Demonstration sites include the Willamette Industries, Inc. Marlboro Mill, South Carolina, the IPST and Herty Foundation laboratories, and the DynaMetrix laboratory. J & L Fiber Services, Wisconsin, will supply the refining plates for field testing. Software development and engineering firms include Step Technology, Tigard, Oregon, and Giese and Associates, Marysville, Washington. It is a nationwide partnership that will result in a product for sale, **not just a research paper for PhDs.**

Why not let the private fund this project?

The private sector did not want to fund a start-up venture. DynaMetrix conducted its first round of research through self-funding, and the cooperation of Willamette Industries. The next stage of research and development needed more money than the founders could gather. We prepared a business plan complete with three and five year pro-formas. We contacted six venture capital firms, pulp and paper trade allies, and the Oregon Research and Technology Development Corporation. The answer was the same: *"We do not fund research (or pulp and paper research). Come back when you have completed your research and have a product."*

The U.S. DOE is investing in DynaMetrix to bring a product to market that reduces negative environmental and energy impacts, enhances the pulp and paper industry's global competitiveness, and supports meaningful real-world research at our higher education institutions.

Why help the Pulp and Paper Industry?

It's a $125 billion industry, provides 1.4 million family wage jobs, and contributes to a healthy U.S. economy. The industry is facing the challenges of declining land available for growing commercial wood, decreasing amount of virgin fiber (trees) available for cutting, increasing need to use recycled fiber, increasing energy costs, demanding environmental requirements, and increasing global competition.

The pulp and paper industry leadership set the U.S.DOE research priorities with *Agenda 2020.* U.S. DOE funded the pulp and paper energy projects that address the industry's environmental and energy challenges, and position the industry as globally competitive by re-capturing the lead in technological leadership. DynaMetrix formed a dynamic partnership to bring *Agenda 2020* into reality. I am heartened by our citizens insatiable desire to learn and apply technology. It is our future. It is the foundation of remaining a nation of free, upwardly mobile, independent citizens, and world leaders.

Thank you for your time and consideration. The DynaMetrix team of business and education partners humbly thank the American citizens for having the vision to invest in technology that will retain the global competitiveness of the pulp and paper industry, contribute to a cleaner environment, and increase energy efficiency. To contribute to an economically viable United States of America, retain the funding for the U.S.DOE energy programs.

Respectfully submitted.

Jeannie Dodson-Edgars
Secretary, Board of Directors
DynaMetrix Corporation

STATEMENT OF THE EDISON ELECTRIC INSTITUTE
SUBMITTED BEFORE THE SUBCOMMITTEE ON INTERIOR APPROPRIATIONS
U.S. HOUSE OF REPRESENTATIVES
MARCH 14, 1996

This statement is submitted by the Edison Electric Institute (EEI) and concerns fiscal year 1997 appropriations for the Department of Energy's Clean Coal Technology Program. EEI is the national association of investor-owned utilities whose members generate and distribute approximately three-quarters of the nation's electricity.

EEI understands the difficulty and complexity of the decisions now pending before the Subcommittee in an era of limited federal dollars. We are concerned that during this appropriations process, the continuation of programs that have proven successful, and that have allowed the nation to reap multiple benefits from the expenditures made, may face disastrous funding cuts or termination. The Department of Energy's Clean Coal Technology Program is such a program and we urge the Subcommittee to maintain sufficient support so that this high quality program may be successfully completed.

EEI believes that significant funding cuts to, or termination of, the Clean Coal Technology Program, adopted in the name of budget reductions, may save dollars in the near term, but will limit, or eliminate, substantial long-term gains in energy efficiency and security. Coal is the nation's most abundant and economic primary energy source.

EEI has been an advocate for the Clean Coal Technology Program since its inception in 1986. The creators and original champions of the clean coal program in Congress, and within the Reagan Administration, had the foresight to support the resolution of difficult challenges facing the energy industry by nurturing innovative technology to permit the generation of efficient, cost-effective and clean coal-based power.

Examples of advancements in clean coal technology as a result of this program include state-of-the-art coal cleaning which removes sulfur-bearing and ash-forming mineral matter. Another benefit of coal cleaning is the reduction of trace elements that could be identified as hazardous air pollutants.

The Clean Coal Technology Program has been, and continues to be, a successful industry and government partnership designed to demonstrate a new generation of innovative coal processes. It is an exemplary program through which the demonstration of advanced coal utilization technologies will allow for sustained progress toward long-term goals of reduced emissions, increased efficiency and utilization of domestic fuel resources. We believe that the proper and prudent role for the federal government is to honor its commitments with the private sector and to continue, and finish, support for this government and industry technology development program.

We also encourage the Subcommittee to maintain support for this program for the simple reason that coal will remain a principal fuel source for U.S. power generation for the foreseeable future. Over one half of the electricity in the U.S. is generated from the combustion of coal. EEI supports the development and deployment of clean coal technologies that will allow the U.S. to utilize its most abundant fuel resource--coal--to meet current and future power generation needs. In turn, significant cuts to, or termination of, the Clean Coal Technology Program, will jeopardize the nation's opportunity to obtain the multiple benefits derived from coal utilization with clean coal technologies.

Last year clean coal funds were reduced by $200 million. This was a sizable cut that affected the management of the program. An additional significant budget reduction would have a devastating impact on the program.

If additional budget reductions are considered for the Clean Coal Technology Program, then we urge the Congress to ensure that the Department of Energy continues its practice of relying upon economic factors to determine funding cuts. In other words, we strongly support the continuation of program management practices which allow *market forces* to dictate which projects continue and which might be terminated. Projects not viable six months ago are being successfully pursued today as a result of changes in economic circumstances. We do *not* support the termination of projects based upon arbitrary factors, such as when a project was selected and whether it is, or is not, yet underway.

In conclusion, EEI urges the Congress to uphold federal commitments to the clean coal program. We encourage Members to preserve this sensible program and allow the nation to reap the fullest return on its investment in efficient, cost effective, and clean energy production.

Written Testimony
# of the Electric Transportation Coalition
FY 1997 Funding for Department of Energy Programs
Submitted to the Subcommittee on Interior Appropriations
U.S. House of Representatives

March 14, 1996

This testimony is presented on behalf of the Electric Transportation Coalition (Coalition), a national, nonprofit organization of electric utilities, automobile manufacturers, state and local governments, and other entities that have joined together to advocate the greater use of electricity as a transportation fuel. (A membership listing is attached.) A principal activity of the Coalition is to encourage the adoption of incentive-based policies and programs to support the development of a widespread and sustainable market for electric modes of transportation.

The members of the Coalition recognize the significant budgetary constraints currently faced by the federal government. We recognize that the Subcommittee must ensure limited dollars are prudently allocated. The Coalition believes that electric vehicle (EV) related programs of the Department of Energy represent such wise expenditures. DOE's electric vehicle programs provide valuable support for the introduction of this new transportation technology, in furtherance of the national objective of increasing the use of alternative fuels in the transportation sector.

The role of the federal government has been, first, to provide research and development support to address technological issues, through programs including the U.S. Advanced Battery Consortium and the hybrid propulsion systems program; and second, to assist industry in the testing and evaluation of the latest electric vehicle technologies through the Site Operator Users Task Force. A third major emphasis of the federal government should be to acquire electric vehicles for federal fleets.

The on-going Department of Energy (DOE) EV-related programs are providing critical support in a number of areas that are key to the success of this new, efficient and clean transportation technology. These DOE programs complement and augment the host of other work that is being undertaken by industry or in partnership with other federal agencies. If FY1997 appropriations to these DOE programs were significantly reduced or eliminated, then the burden of funding would fall to other parties who may be unable to make the additional investment as they already are shouldering significant costs and risks in bringing this technology forward.

Funding for the United States Advanced Battery Consortium

The Coalition urges the Subcommittee to maintain support for battery research and development, including the U.S. Advanced Battery Consortium (USABC). The need for significant advances in battery technologies is frequently cited as the most pressing and challenging technological need associated with electric vehicles. For FY 1996 the Subcommittee provided $15 million specifically for USABC's research efforts.

As the Subcommittee considers FY 1997 appropriations, the Coalition urges the Subcommittee to consider the successes, to date, associated with the activities of the USABC. The USABC represents a successful model management system for future public/private partnerships having resulted in several important technology deliverables from U.S. tax dollar investments. Battery development is a scale-up process, moving from development of cells to modules and then full-size battery packs.

All USABC research contracts are resulting in cells, modules and full size battery packs undergoing testing at the developers, at the U.S. automobile companies, or at the U.S. national laboratories. And, USABC has achieved prototype mid-term battery packs which have been installed into prototype electric vehicles that are being operated in selected electric utility test fleets and in the testing facilities of the U.S. automobile companies.

In April 1996, USABC participants (comprised of U.S. automobile manufacturers, battery developers, the U.S. Department of Energy and several of the national laboratories) will complete Phase I of its efforts to begin research into promising technologies which accelerate the market potential for EVs. Phase I is comprised of four elements:

1. begin research efforts (i.e., establish research goals and criteria as well as award contracts);
2. establish a U.S. advanced battery industry;
3. develop an advanced battery to meet mid-term criteria (potential to double the range and performance of EVs compared to battery technologies available today) with pilot plant production capability; and
4. demonstrate design feasibility of advanced batteries meeting long-term goals (make EV range and performance comparable to that of today's gasoline-powered vehicles).

The USABC activities are not only successful, but also cost effective. All of the Phase I accomplishments to date were reached at less than projected cost. Phase I activities were budgeted to total $262 million (from industry and government); however, only $200 million have been committed, or spent for Phase I.

Phase II will build upon the successes of Phase I and move forward toward the next levels of battery development. Phase II consists of three elements which the industry participants expect to complete by the end of 1999:

1. conduct more extensive safety, durability, and life testing of mid-term batteries to obtain automotive validation (i.e., ensure the batteries meet requirements determined by industry as necessary for normal automotive applications.);
2. continue research efforts to reduce costs associated with mid-term batteries; and
3. develop long-term battery technologies through the pilot-line production stages.

It is important to note that, without the limited federal assistance already invested, the work done to date by USABC probably would not have been achieved. Individually, companies cannot meet the significant investment requirements to conduct advanced battery research.

For fiscal year 1997, the USABC will require approximately $23 million in federal funds. The majority of this funding will be directed toward long-term, lithium-based battery research. In later years, the USABC anticipates reduced expenditures as the program and projects near completion in 1999. USABC has specific goals to achieve and when they are reached the private and public sector funding for these activities will, and should, be directed toward other endeavors.

Funding for the Hybrid Propulsion Systems Development Program

The Coalition also supports continued funding for the DOE Hybrid Propulsion Systems Development program. In FY 1996, the Congress approved $40.4 million for this program which continued and assisted efforts allowing industry and government to work together to develop a consumer attractive, ultra-low emission vehicle with high fuel economy. This 50% cost-shared program integrates improved propulsion systems with a variety of energy control and storage technologies, with the objective of producing "production feasible" prototype hybrid systems. As of February, three major contracts have been awarded to teams of developers, featuring large and small businesses -- led by each of the domestic automobile manufacturers respectively -- for the development and demonstration of hybrid EVs.

Funding for the Site Operator Users Task Force Program

The Coalition encourages the Subcommittee to maintain support for the Site Operator Users Task Force (SOUTF) program. For FY 1996, the Subcommittee approved $2.5 million in funding to the SOUTF. We encourage the Subcommittee to again provide this funding amount for FY 1997. The SOUTF is a joint effort by government, utilities and educational institutions featuring cost sharing by non-federal participants. The program tests and evaluates near-term electric vehicles and associated infrastructure in realistic operating environments. Vehicles acquired through the SOUTF program provide valuable information to manufacturers and users. The program also assists in demonstrating the market opportunities for EVs, and in supporting the development of the infrastructure necessary for the widespread operation of electric vehicles.

The SOUTF program played a key role in conjunction with EV America, the nationwide, electric utility-led initiative to accelerate the introduction of electric vehicles into the marketplace through placement of a large number of EVs into utility, commercial, government and transit fleets. Funding through the SOUTF program has supported a rigorous performance evaluation process to establish a baseline for today's EV technology. Utilities participating in EV America have agreed to purchase vehicles tested in the performance evaluation; these vehicles will undergo field test evaluations to assess their ability to meet the needs of fleet operators.

In FY 1997, EV America will continue on-going vehicle performance and field testing. In addition, EV America will maintain efforts to test advanced batteries as well as other enabling technologies intended to improve the range and performance of EVs.

Federal Alternative Fuel Utilization Program Funding

The Energy Policy Act (EPAct) instituted a number of important programs to create a market for alternative fuel vehicles. A role for the federal government, as defined by the Act, is to share the risks of early technology introduction through acquisition of alternatively fueled vehicles for use in the federal fleet. Federal procurement of electric vehicles is particularly important, given the relatively greater risks to early technology adopters, resulting from the use of this radically different new technology.

The Coalition acknowledges that the Congress chose not to fund the Department of Energy's Alternative Fuels Utilization Program for FY 1996 and instead urged individual agencies to acquire AFVs on their own volition. In turn, the DOE has recommended that the incremental costs of AFVs be spread across the entire federal fleet so that no one department or agency that acquires such vehicles bears solely the burden of the increased costs.

Also, to assure that the broadest spectrum of alternative fueled vehicles is introduced into the federal fleet, the DOE has recommended that each alternative fuel constitute at least ten percent of the total number of AFVs that the Energy Policy Act requires the federal government to purchase.

The Coalition is currently working with the Administration to ensure the goals of EPAct are met -- to diversify transportation fuels and to achieve environmental benefits. We urge the Subcommittee to support these efforts and to support the recommendations offered by the Department of Energy with respect to federal acquisition of alternative fuel vehicles, like EVs.

By acquiring alternative fuel vehicles, including EVs, for the federal fleet, the federal government has an important role to serve and an opportunity to complement the efforts of the private sector through the "EV Market Launch Framework" program developed and supported by the U.S. electric utility and automotive industries. Building on the initiatives established under EV America, the EV Market Launch Framework envisions placement of electric vehicles, including vehicles incorporating advanced batteries that can meet the mid-term performance goals of the USABC, into fleet operations around the country. The EV Market Launch Framework is based on a commitment from the U.S. electric utility industry and the domestic automobile manufacturers to manufacture, purchase and demonstrate (together with government) road-worthy electric vehicles by the end of 1997. Both the auto and utility industries agree that this effort is essential to the creation of a self-sustaining market for electric vehicles.

The federal government's role would be to purchase, under the EPAct authorities, road-worthy EVs and to continue to co-fund critical research and development activities, like the USABC, to widen the market potential for this important new transportation technology.

Conclusion

The benefits of EVs justify a limited, but crucial, federal government role to assure that EVs become market ready in this decade. Electric vehicles will enable the nation to meet critical needs -- for fuel diversity in the transportation sector and increased reliance on domestic transportation fuels; for development and advancement of new technologies to maintain U.S. science and technology leadership in key areas that were previously supported through defense and aerospace programs; for keeping the U.S. in a position of technological superiority in the worldwide evolution in personal transportation; for economic opportunities and jobs creation; and for more environmentally acceptable personal transportation options.

THE KALINA CYCLE: BENEFITS AND STATUS

By:
Herman "Hank" Leibowitz
Vice President and Chief Engineer
Exergy, Inc.

Mr. Chairman and Members of the Subcommittee. My name is Hank Leibowitz, and I am Vice President and Chief Engineer of Exergy, Inc. in Hayward, California. I am here before you, today, to discuss the status and benefits of our Kalina Cycle technology. I wish to thank you for including $2M in the FY96 appropriations bill to carry out high temperature testing of our 3.2 Megawatt Demonstration Facility, situated at the ETEC facility in Canoga Park, California. Our required cost share is available and ready to be spent on this project as soon as the DOE provides the $2M in appropriated funds to the facility.

Exergy is an energy technology company that has developed, patented, and is commercializing the Kalina Cycle for use in thermal power plants. The Kalina Cycle is a comprehensive alternative technology for the Rankine Cycle, the dominant thermal power cycle since the 19th century. We can show that the Kalina Cycle improves the efficiency of thermal power plants by providing more electrical energy output per unit of fuel than a Rankine Cycle, resulting in increased output or reduced fuel use. Our data taken, to date, from the ETEC facility (the only operating Kalina Cycle in the world) proves this point. Our projections indicate further that the capital cost per kilowatt of installed Kalina Cycle power plants can, in certain circumstances, be less than the capital cost per kilowatt of comparable Rankine Cycle power plants. Our objective is to make the Kalina Cycle the dominant thermal power cycle in the worldwide power generation industry.

The Kalina Cycle is distinguished from the Rankine Cycle by the use of an ammonia water mixture as the working fluid, the ability to vary this mixture of the working fluid throughout the power cycle, and system designs that achieve a high level of heat recovery. The first design element of the Kalina Cycle is the utilization of a mixture of two fluid components having different boiling points that comprise the working fluid used in the cycle. A limitation of the Rankine Cycle is the use of water, because water boils at a single temperature. Mixtures such as ammonia-water boil at a temperature that continually changes during the vaporization process. The "light" component, ammonia, boils off first leaving behind a mixture with greater concentration of the "heavier" component, water. As this process occurs, the boiling temperature of the remaining fluid increases. This phenomenon improves the manner in which heat is acquired by the working fluid from the heat source, which leads to the significantly improved plant efficiency.

In addition, Kalina Cycles can be designed to vary the composition of the working fluid in the different stages of the cycle. This design element is a unique characteristic of the Kalina Cycle technology, and yields the most significant improvements in the plant efficiency.

A key subsystem of the Kalina Cycle is the Distillation/Condensation Subsystem (DCSS), which represents the principal difference in power plant structure between a Rankine Cycle plant and a Kalina Cycle plant. This DCSS creates the different working fluid mixtures at the different stages of the cycle, optimizing heat transfer characteristics at any point, thereby optimizing efficiency.

Exergy's strategy is to leverage the extensive marketing, financial, and development resources and expertise of its licensees. In 1993, after an investigation of the technology that began in 1991, General Electric licensed the Kalina Cycle technology for application to its worldwide sales of gas turbines. The Kalina Cycle is to be applied to the combined cycle mode of operation of gas turbines, acting as a bottoming cycle.

In 1994, Ansaldo, a leader in worldwide sales and development of geothermal power plants and associated equipment, licensed the Kalina Cycle technology for international applications at some locations. Other companies also have licenses for other international locations.

In 1995, ABB, a worldwide leader in sales of direct fired power plants, licensed the Kalina Cycle for direct-fired applications. This is a major opportunity for both ABB and Exergy as the team can now offer, for sale, the highest efficiency, direct fossil fired, power plants in the world. The first of these power plants is slated to go into operation as part of an ongoing DOE, cost shared program, and the testing at ETEC, this year, is required to get the high temperature design data needed for this first direct-fired power plant.

Also in 1995, Ebara, a major Japanese developer of municipal solid waste incineration power plants, licensed the Kalina Cycle technology for applications to industrial waste heat, waste incineration, and Japanese geothermal power plant applications.

As may be clearly seen, there are a wide number of opportunities for beneficial application of this American developed technology, and many of the applications are dependent upon the results of the testing ongoing at ETEC. The data taken in 1996 will form the basis for all high temperature designs of Kalina Cycle power plants.

Utility Data Institute (UDI), a McGraw-Hill subsidiary, estimates that the worldwide installed base of electricity generating capacity in 1993 was 2.9 million MW of electric generating capacity, 765,000MW of which was located in the United States. UDI estimates that between 1994 and 2003, approximately 629,000 MW of new electric power generating capacity will be added worldwide, with 317,000 MW projected to be added in Asia, 81,000 MW to be added in North America, 78,000 MW to be added in Europe, 55,000 projected to be added in Latin America, and 98,000 MW for the rest of the world. UDI estimates that an investment of $630 Billion will be required to install these worldwide capacity additions. This is a market opportunity that Exergy, its partners, and its Kalina Cycle technology seek to address.

For thermal power plants, UDI estimates the following distribution of new installations:

Direct Fired Power Plants (including industrial waste heat):	306,000MW
Combined Cycle Power Plants	124,000MW
Simple Cycle Gas Turbines	48,000MW
Other	6,000MW

The plan for Exergy and its partners is to get the data from the Kalina Cycle facility at ETEC, use it for full scale plant designs, build the needed first-of-a-kind full scale facilities, and address the worldwide markets for new capacity. This is a major opportunity for our American firm and our US, and worldwide, partners.

The engineering designs, to date, using the Kalina Cycle technology produce the following projected efficiency advantages of the Kalina Cycle:

Type of System	Projected Percentage Efficiency Increase
Direct Fired Systems	15-20%
Bottoming Cycle in Combined Cycle	5-10%
Systems for Geothermal and Other Low Temperature Applications	25-50%

It is this dramatic efficiency advantage which will be the main selling point of the Kalina Cycle systems due to the attendant fuel and cost savings, or in the case of Geothermal applications, the increased amount of electricity generated for a given well.

ABB is also testifying today. ABB is proposing to work with a Midwestern utility and the Department of Energy on repowering an existing facility with Kalina Cycle technology. The technology is expected to increase the plant's efficiency from 28.4% to 37.2%.

In short, Mr. Chairman, the funding that you and your Senate counterparts provided for 1996 testing of the Kalina Cycle is the cornerstone to everything else that can happen. The Kalina Cycle prototype power plant on the ETEC facility was built solely with private funding, and is the only facility capable of providing the necessary design data. The cost share which you required is in place. It would be much appreciated if you could help with the process of getting the appropriated funds to the facility so that the testing can proceed.

I thank you for the opportunity to present this testimony.

Testimony on
Energy Efficiency and Its Link to Health

by
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Submitted to:
U.S. House of Representatives
Subcommittee on Interior and Related Agencies
Committee on Appropriations

March 21, 1996

We appreciate this opportunity to present our views before this distinguished committee. This testimony presents the results of work supported by the Interior Subcommittee through the U.S. Department of Energy Office of Building Technologies. It also presents a request for continued Congressional support of this energy research area that produces previously unrecognized benefits to American industry, as well as health-conscious consumers.

The specific program area referenced in this testimony is called Energy-Efficient Industrialized Housing (EEIH). The EEIH mission is to conduct research that results in higher-quality, more energy-efficient homes that are affordable to build, buy and live in. With Congressional support, the EEIH program has developed a commendable track record toward that goal. FY96 funding for the program is $1.1 million.

The EEIH project covers a range of activities, but in this testimony we are going to concentrate on an exciting recent development -- energy efficiency and its link to health.

As part of the EEIH program, we have just completed the construction of a project in Florida that we hope will demonstrate how efficient buildings can also create healthier human environments. Called Health House®, the project was developed by the American Lung Association's Minneapolis Affiliate for use by the one hundred lung association offices across the country. The Health House® project is a collaboration of industry, research and non-profit partners concerned by the rapidly increasing number of Americans -- many of them children -- who suffer from respiratory allergies and asthma.

The National Academy of Science estimates that between 30 and 60 million U.S. citizens experience allergic or asthmatic respiratory ailments. While medical science is conducting research into these often intractable and frequently lifelong health problems, we all know that advances in medicine can be long in coming. If your child or spouse suffers the frustrating, frightening and sometimes life-threatening symptoms of asthma, you know that it's very hard to wait patiently for medical miracles.

Perhaps the most frustrating aspect of the problem is that what's making these people sick is an invisible but pervasive part of the indoor environment -- an environment that's just fine for the rest of us.

We all know that it's possible to protect people from hostile environments. The U.S. Space Program is a prime example. Men have walked on the moon and regularly work in space with no ill effects. Health workers, firefighters and hazardous materials specialists routinely function with precision in the most toxic of environments. All it takes to keep these people safe and healthy is a very expensive life-support system that maintains their total physical isolation.

Together, the Florida Solar Energy Center and the American Lung Association affiliates throughout the country are adapting the "life-support system" concept to the housing industry. No, we're not suggesting that millions of asthmatics don space suits to protect them from exposure to the environments that are making them sick. Instead, we're combining the best of what energy-efficiency technologies have to offer with systems engineering to create affordable homes that function as better life-support systems. The Orlando Health House® is a premier demonstration that such a concept is not only "do-able," it's also affordable.

One might not consider Orlando to be a hostile environment (certainly Walt Disney didn't think so). But the warm, humid climate of Central Florida is not only conducive to tourism, it's also conducive to growth of the dust mites and fungal allergens that cause and exacerbate asthma and many respiratory allergies.

The Orlando Health House® combines energy-efficient, air-tight construction with dehumidification and ventilation techniques to make the home's interior hostile to dust mites and fungi. Within this sealed system, ventilation air maintains the interior space at a slightly positive pressure with respect to the outdoors. This combination of sealed and well-insulated exterior envelope and pressurized interior eliminates intrusion of the humid outside air that creates the moist environment in which mites thrive.

In addition to keeping the air dry, which kills dust mites, this positive pressure technique keeps the interior surfaces of the house dry by forcing dry air into all the cracks and crevices. By keeping the interior dry, fungi are deprived of the moisture they need to grow and thrive. Please note that positive pressure ventilation and central dehumidification cannot be achieved unless the house is energy efficient to begin with.

The dehumidification and ventilation system also includes high-efficiency filters that remove most dust particles and other pollutants, such as allergy-causing pollens, with a particle size larger than one micron. Surprisingly, the filter's efficiency actually increases with use.

Those are the technological aspects of the Orlando Health House®. Other innovations may simply fall under the heading of "common sense." We've known for years that many modern building materials, from paints to wood products, emit volatile organic compounds (VOCs), which can act as lung irritants. In the Orlando Health House®, these materials are replaced by low-VOC paints and adhesives, factory-finished hardwood, and solid rather than pressed-particle surfaces.

Each of these concepts, materials and techniques has been tested on its own to prove individual efficiency in terms of energy and health response. But the Orlando Health House® is more than just a conglomeration of individual parts -- it's a system, and it must be tested as such. This month, we are beginning to test the house as a total system for both health and energy efficiency. The tests involve monitoring the Health House® and a control home in the same location for relative humidity and dust mite allergens. The temperature and humidity levels are being monitored continuously, and dust samples are to be collected monthly for microscopic analysis. We plan to similarly monitor other Health Houses® being constructed this year in Minneapolis, MN; New Orleans, LA; Huntsville, AL and Jacksonville, FL.

We're confident that total housing systems such as the Health House® will prove to be an affordable, near-term solution that can allow millions of Americans to live healthier lives in more comfortable homes. However, such systemic solutions to human problems can only be developed and tested through continued, federally sponsored research. Just as the odds of a single doctor discovering a cure for asthma are astronomical, so, too, are the chances of a single manufacturer or builder creating a perfect home. The housing system is so complex, and each of its elements so interrelated, that it takes a broad-based national-level program, involving partners from research, government and industry, to create and prove the benefits of innovative energy-efficient housing systems such as the Health House® and related research being funded by the Office of Building Technologies of the Department of Energy.

The Energy-Efficient Industrialized Housing Program and the American Lung Association local affiliates are vital partners in this important effort. We urge Congress to continue funding the Department of Energy Office of Building Technologies programs at a substantial level so that residential energy-efficiency technology research can continue to benefit all Americans.

Thank you for your consideration and support.

Introduction

Fuel Cells for Transportation is a national coalition of more than 30 organizations dedicated to advancing fuel cell technologies. We appreciate this opportunity to present testimony in support of the U.S. Department of Energy's FY 1997 budget request for transportation fuel cells.

DOE has proposed a modest but significant increase in the transportation fuel cell budget. We support the full $30.1 million request because we believe it will support our national goals of energy efficiency, environmental protection, and national security.

Energy Efficiency

A fuel cell is a simple device. It combines hydrogen from fuel with oxygen from the air to produce energy, heat and water. Fuel cells rely on electrochemistry, not combustion. Because a fuel cell does not have to burn fuel to release the energy in the fuel, it is highly efficient.

Just how efficient? As you know, fuel cells have been identified as one of the "candidate" technologies under examination in the Partnership for a New Generation of Vehicles, the quest to develop a passenger car with fuel efficiencies up to three times the fuel efficiency of today's comparable vehicle. Independent analysts and the government's own experts have concluded that fuel cells are the only technology identified to date which could actually meet the fuel efficiency goals of this initiative.

Environmental Protection

Because of their efficiency, fuel cells emit fewer greenhouse gas emissions than gasoline-powered vehicles. As a result, the technology could become a critical component of international strategies involving climate change.

The Energy Information Administration recently projected that U.S. CO2 emissions -- including those from the transportation sector -- would continue increasing at least through the year 2015.

Fuel cells could help change that picture. DOE projects that if 10% of U.S. passenger vehicles were powered with fuel cells, carbon dioxide emissions would be cut by 60 million tons a year, or 5% of the projected total carbon dioxide emissions by the year 2007. The impact, of course, would be magnified with international use of the technology.

Fuel cells bring other environmental benefits. In a hydrogen-fueled fuel cell there is no pollution. No nitrogen oxides or sulfur oxides. No carbon monoxide or carbon dioxide. No particulate matter. Only trace elements of pollutants are produced even if natural gas, methanol or other fuels are used.

A DOE study concluded that if only 10 percent of light-duty vehicles used fuel cells, regulated air pollutants would be reduced by more than 1 million tons a year.

National Security

One of the strongest arguments for fuel cells is national security. In the current issue of Atlantic Monthly, DOE Deputy Secretary Charles Curtis and Special Assistant Joe Romm note that the U.S. could face another serious oil crisis in the coming years.

Fuel cells could help cushion the shock and bolster U.S. security. DOE reports that if 10% of light-duty vehicles used fuel cells, oil imports would be cut by 800,000 barrels a day -- 8% of projected petroleum use by 2007. At current prices, such a reduction would also yield a $6 billion improvement in our balance of trade.

Equally important, fuel cells could play a key role in maintaining the economic security and health of the domestic auto industry. To be sure, foreign manufacturers are challenging U.S. leadership in this area.

Daimler-Benz, makers of the Mercedes Benz and the inventor of the automobile more than a century ago has already successfully demonstrated a fuel cell van. The company vowed: "We will not let our... American competitors gain the upper hand in this technology." It is expected to produce a more advanced demonstration vehicle this year. Toyota is also expected to unveil a "commercial prototype" fuel cell vehicle this summer. Continued DOE support could prove critical in the world race to develop this technology -- and control world markets.

Conclusion

The Subcommittee's previous support of the transportation fuel cell program is already paying major technology dividends. Ballard, a Canadian company which has worked with DOE, already has met the volume and weight goals set by the Partnership for a New Generation of Vehicles, years in advance of target dates. In other words, a fuel cell already exists of the size, weight and performance to power a passenger vehicle. The Subcommittee's continued support will help U.S. firms match this performance. Let me stress how important this would be to the United States economy. In addition to its other benefits, a healthy domestic fuel cell industry could lead to the creation of tens of thousands of high-quality jobs. These are jobs that could ultimately be lost to Germany or Japan if the United States loses the technological edge.

On the engineering side, the requested DOE budgets take the program to its next step -- and will result in development of finished fuel cell vehicles. On the research and development side, the program will help bring down the cost of fuel cells and make their widespread use in transportation a reality. That would be good for energy efficiency, good for the environment, and good for national security and our economy.

The FY 1997 Fossil Energy R&D Budget

Written Testimony of
David H. Pai
Chairman & President
Foster Wheeler Development Corporation

To The
Committee on Appropriations
Subcommittee on Interior and Related Agencies
U.S. House of Representatives

March 21, 1996

Mr. Chairman and Members of the Subcommittee:

Foster Wheeler Development Corporation is the Research and Development subsidiary of Foster Wheeler Corporation. Foster Wheeler is an engineering, construction and manufacturing company with major activities in power generation, and engineering and construction of petrochemical and pharmaceutical plants.

The purpose of this testimony is to request continued support from this Subcommittee for the Power Systems Development Facility (PSDF) for advanced coal gasification and fluidized bed technologies. A cogent case for this facility has already been made by Mr. Gary Styles of Southern Company Services, which has the overall responsibility to construct and operate this facility. Foster Wheeler is a major participant in this project to supply the advanced fluidized bed system. I would like to give this Subcommittee a point of view from a major industrial supplier of clean coal power generation equipment and systems.

Importance of the Wilsonville PSDF

The PSDF is designed to provide a long-term test facility to verify key components such as high-temperature ceramic filters and the topping combustor. These are key components for many coal gasification and combustion based system which help us attain the efficiency and emission levels needed to keep our electricity rates low, and our environment clean. When demonstrated, these clean coal technologies will benefit all U.S. companies. Thus, the PSDF is a necessary foundation for the future U.S. supply of efficient, clean and low-cost electricity.

Energy Security, U.S. Demand/Growth, and the Environment

There is ample evidence that the GDP growth highly correlates with the growth in electricity consumption, as can be seen from Figure 1, even though total energy consumption is relatively flat over the 20-year span from 1973-1993.

The economic supply of electricity is a key factor in our energy security. The price of electricity (even though electricity is not considered a commodity), is a more important factor than the price of all commodities, including that of oil [1]:

- 90% of the U.S. GDP arises from the residential, commercial and industrial sectors which collectively use 99% of all electricity and 34% of all oil;
- 10% of the economy arises from the transportation sector which uses 0.1% of all electricity and 66% of all oil.

Cheap electricity is anti-inflationary, more so than cheap oil. The price of electricity is a major "multiplier" and affects our economy in a dominant way. Therefore, it is essential that we have the proper mix of technologies ready for development when a major push for capacity addition is expected in the beginning of the next century.

U.S. Power Demand/Growth and Environmental Impact

Figure 2 shows an electric power growth curves to 2030 with the major fuel mixes based on Natural Energy Strategy.[2] It can be seen that coal will continue to play a dominant role for the foreseeable future. The dependence on coal will be accentuated if the nuclear option is foreclosed in the U.S.

The current fleet of U.S. power plants is aging. For example, by the year 2000, 60% of the U.S. plants will be over 30 years old. Thus, to keep up with the demand, we must also replace or repower these aging plants. Starting in the early part of the next century, a large quantity of capacity additions will be needed, much of this will be in the form of repowering of older coal-fired plants.

From an environmental impact standpoint, it is crucial to have the proper technology ready for deployment. Figure 3 depicts the effect of advanced technology deployment on CO_2 emissions in the U.S. If we continue business as usual, by the year 2010, the CO_2 level will be approximately 2.75 billion metric tons a year—almost twice the 1990 level. As a result of the 1992 Earth Summit in Rio de Janeiro, President Clinton pledged that the U.S. would try to maintain the 1990 level of CO_2 emissions by 2000. Two other scenarios are also depicted in Figure 3: one assuming a moderately paced deployment of advanced technology options; and the other, an accelerated deployment. As can be seen, even with the accelerated case, our CO_2 production would still be between 20-30% higher by 2000 compared to the 1990 levels. SO_2 and NO_x emissions would follow the same trend. Thus, given the fact that coal is essential in our energy mix, it is imperative that we expedite the demonstration of the Clean Coal Technologies so that they will be ready for deployment when we need them. Our experience indicates that the time to commercial entry of any viable energy conversion system is 15-20 years. It is therefore essential that we expedite the Clean Coal Technology demonstrations now.

Influence of Clean Coal Technology on Productivity, Competitiveness, and U.S. Jobs

Productivity growth is a primary determinant of economic health. Electrification through the use of electrotechnologies is the engine that will drive the continuing growth in the U.S., particularly in the manufacturing sector. Our competitiveness and hence, jobs at home, depends on productivity improvements. Cheap electric power is a key to this relationship. Forbes Magazine, in a January 31, 1994 article entitled "The Fight for Jobs," showed that the 12 states with the lowest electric rates included seven states with the best job prospects. Conversely, the 12 states with the highest electric rates included 11 states with the worst job prospects.

In addition to direct and indirect jobs created by the construction and operation of the Clean Coal Technology plants, the deployment of Clean Coal Technolgoy will also enhance our competitiveness and hence our standard of living by keeping the electric rates low. This will further enhance job creation at home.

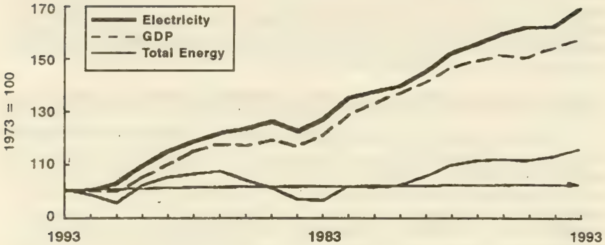
In summary, the PSDF is a key link to our ability to timely deploy the advanced clean coal technologies which will assure this nation of adequate supply of electricity at competitive rates. The deployment of these technologies will also help us preserve our environment. I urge this Subcommittee to support the continued funding of the PSDF.

References:

[1] "Mills, Mark P., "Does Price Matter? — The Importance of Cheap Electricity for the Economy," prepared by Mills, McCarthy & Associates Inc. For Western Fuels Associates, Inc., September 1994.

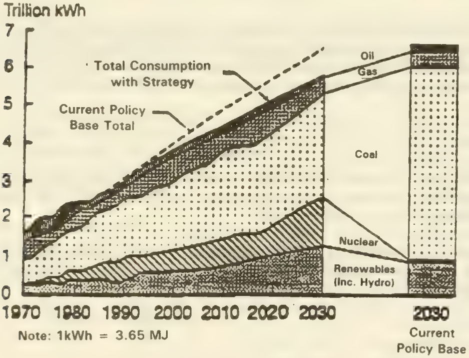
[2] Armor, A.F., Preston, G.T., "Impact of Fossil Generation Advanced on the Emission of CO_2 in the U.S.," Greenhouse Gases: Mitigation Options, International Energy Association, August 1995.

Figure 1 U.S. Trends: 1973 - 1993



Data from DOE/EIA Annual Energy Review, June 1993

Figure 2 National Energy Strategy for Electricity Generation [2]



Note: 1kWh = 3.65 MJ

Subcommittee on Interior and Related Agencies
Committee on Appropriations
U.S. House of Representatives
Public Witness Testimony FY'97

Mr. Chairman and Members of the Committee, we are Rev. T. Byron Collins, S.J., and Rev. William L. George, Assistants to the President of Georgetown University. We would like to extend our sincere appreciation and gratitude for your support of the 30-Foot Fuel Cell Powered Bus Program. We are pleased to report that the promise of fuel cell technology to meet the transit industry's need for environmentally clean, fuel efficient power is now being demonstrated on the world's first liquid-fueled 30-foot fuel cell powered bus. Moreover, the 30-Foot Fuel Cell Bus is providing the technical direction and assurance to proceed with the commercialization of the fuel cell.

Currently, the Federal Transit Administration is working to develop a commercially viable 40-foot fuel cell bus using a domestic fuel cell manufacturer. The goal is to bring the fuel cell technology to a state of commercial production with the promise that the technology will serve as the pathfinder to the automotive market. The work to date provides confidence that the ambitious goals of the fuel cell bus program will be achieved and fuel cell technology will find its way into the automobile marketplace yielding great economic and environmental benefits to the nation.

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GTA
Gas Turbine Association

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Statement of the Gas Turbine Association to the United States House of Representatives, Committee on Appropriations, Subcommittee on Interior and Related Agencies, regarding United States Department of Energy, Office of Energy Efficiency & Renewable Energy and the Office of Fossil Energy, Fiscal Year 1997 Appropriations.

The members of the Gas Turbine Association (GTA) appreciate the opportunity to present its views and recommendations to the United States House of Representatives, Committee on Appropriations, Subcommittee on the Interior and Related Agencies, regarding Fiscal Year 1997 appropriations for the Department of Energy (DOE), Office of Energy Efficiency & Renewable Energy (EE) and Fossil Energy (FE).

GTA is dedicated to increasing the awareness of the role of gas turbines in meeting future US and global power generation needs. GTA's members include: **ABB Power Generation Inc.**, Electric Power Research Institute, **Rolls-Royce Inc.-Allison Engine Company**, South Carolina Research & Development Center, **Siemens Power Corporation**, **United Technologies Corporation**, and **Westinghouse Electric Corporation**.

The GTA regular member companies, indicated above in bold type, have US employment of over 127,000 in the industrial equipment sector and over 15,000 employees who are directly involved in non-aerospace gas turbines in the United States. This does not take into account the many thousands of supplier and affiliate jobs across the country directly linked to GTA member company industrial enterprises. GTA believes federal government support of industries investment in new technologies will further improve competitive positions of these US based operations in both the domestic and export markets, while greatly enhancing the number of US gas turbine power industry jobs.

The power generation equipment market continues to be driven by the need to provide highly efficient, environmentally friendly, and cost effective power to meet consumer demands. GTA believes that, with the continuation of federal government's R&D efforts, the US based gas turbine power generation industry will meet consumer and market needs while, at the same time, increase US employment and US exports.

While market forecasters estimate the need for 87 GW on new power generation in the US over the next decade, they predict an export market of over 300 GW available to independent power producers alone. Accelerating industrial and residential power needs in developing countries, coupled with the worldwide spread of deregulation is leading to a tremendous overseas market demand for power generation equipment. Over the next ten years, the export market is projected at $1.0 Trillion.

The success of this industry is highly dependent on sharing the development risks with the Government to arrive at a win-win strategy for the industry and the country. Industry is willing to make the commitment to commercialize the new technologies but the price-driven market requires external financial support for the lengthy and expensive development process required for new gas turbines. This support is essential for the US to maintain a worldwide leadership role in gas turbine power generation products and environmental technologies.

As such, GTA strongly supports the following initiatives:

- Continuing the Department of Energy's Advanced Turbine System (ATS) Program at original funding level's for industrial (<20MW) and utility (>150 MW) size gas turbine technology development and demonstrations
- Extending the ATS technologies to mid-size (30-150 MW) gas turbines to meet intermediate power market requirement for repowering and distributed generation
- Evaluating further advances in gas turbine technologies in combination with fuel cell technologies to achieve very high efficient clean hybrid power systems
- Extending gas turbine environmental technologies to ensure compatibility with new emission regulations
- Expanding the alternate fuels flexibility of gas turbines to burn fuels of lower quality and waste energy resources

ADVANCED TURBINE SYSTEMS

GTA strongly supports the continuation of the DOE ATS program at program plan funding levels. This program is important to US power generation because gas turbines provide the highest efficiencies and are the most environmentally friendly of power generation technologies today. ATS technology product introduction must be achieved by the year 2000 to meet America's power production goals.

Keeping the ATS program on track is important and is expected to result in the following benefits:

- Improving power generation efficiency by the year 2000 to meet our domestic needs, improving our energy security, reducing consumer energy costs, and increasing competition. Reducing or deleting this funding will delay these benefits substantially as development of ATS technologies is a technically complex, funding intensive, multi-year process.

- Sustaining industry's commitment to commercialize ATS since the Government's contribution to sharing technical and cost risks is essential for industry to continue their investment in development and subsequent commercialization of ATS technologies.

- Increasing the number of advanced technology engineering and manufacturing jobs in the gas turbine power generation industry and the associated supplier base in the United States.

- Keeping the US in a technology and export leadership position for advanced power generation and environmental technologies.

The ATS government/industry/university partnership is a highly **cost-shared** investment toward low cost, clean energy. The gas turbine industry is committed to fulfilling its obligations under the ATS Program and urges the same commitment from the government. GTA believes the failure to continue this program to completion (through the year 2000) will be detrimental to future energy sources, the environment, and the economy of our country. We strongly urge federal support for ATS.

BEYOND ATS

Electric industry restructuring and market uncertainty in the United States has largely eliminated the near-term domestic market for new generation and R&D funding by electric equipment purchasers. The resulting drop in gas turbine prices has eliminated the market incentives needed for gas turbine suppliers to fund internal development of advanced technologies or innovative applications. Given the huge amount of outdated and aging fossil and nuclear steam capacity that will need to be replaced in the 2000-2010 time frame, R&D, beyond ATS, needs to be conducted in the next 5 years to have the most economic and environmentally attractive component, system and alternative fuel options for gas turbines at the "starting" gate. Opening up overseas markets and domestic repowering applications through innovations in gas turbine fuel flexibility would provide a major national economic stimulus.

Flexible Gas Turbine System for Intermediate Load, Repowering and Distributed Power Generation

The ATS program has been quite effective at bringing together the collective efforts of industry, government and the academic community to commercialize advanced technology for very large (over 300 MW) base load combined cycles and small (less than 20 MW) industrial gas turbines that fit well in cogeneration applications. However, a need exists for mid-size (30-150 MW) units that are optimized for operation at intermediate load, say 500-5000 hours per year. The efficiency does not need to be in the 60% range of the large, base load plants, but the installed cost per kW needs to be closer to that of a simple cycle than to that of a combined cycle, and the plant needs to be capable of rapid startup to meet intermediate load demands for flexibility in the owner's operating system. These systems would meet the requirements for remote or distributed power generation capacity.

Technical approaches to meet this need are available using both frame-type and aeroderivative gas turbines as the basis for new designs. Intercooling, recuperation and moisture addition to either type of simple cycle gas turbine can produce the required performance and should be capable of being manufactured and installed at sufficiently low cost per kW to meet the users' needs.

However, immediate market uncertainties resulting from electric industry deregulation have created a large hurdle to development and commercialization of new generation technologies. Near-term investment in new generation in the United States is being deferred as a result of these uncertainties. Excess conventional gas turbine production capacity is driving prices down. Lack of demand and low prices have almost eliminated the market incentives for gas turbine suppliers to sponsor internally the large R&D investments ($100 million range) needed for innovative new products.

A DOE initiative for such a flexible, mid-sized gas turbine would address the problem in an effective way, as is being demonstrated in the very large and small sizes in the ATS Program. For the midsize program, however, the emphasis for DOE support would be on component development while private sector funding provides most of the demonstration program. Such a program would provide national benefits in export earnings. The products would be attractive in foreign countries, both industrialized and developing. Basic gas turbines developed and manufactured in the US would be exported to serve these foreign markets.

A DOE program for the development of advanced, mid-sized (30-150 MW) gas turbines, optimized for midrange capacity factor with rapid start capability is recommended for funding, starting in FY97. The program would consist of four phases over approximately six years, with multiple contractors in the first three phases and a single contractor in the final (Utility System Demonstration) phase. Cost share requirements in each phase would be the same percentages as in the ATS Program, except that the demonstration phase is 90% cost shared. This brings the total program to 45% cost shared.

Fuel Cell/Gas Turbine Hybrid Systems

Combining fuel cells with gas turbines for land based power generation and cogeneration is an exciting concept which enhances overall system performance. The combined system vastly improves air emissions, and reduces cost of power compared to fuel cell/gas turbine "hybrid" systems.

Fuel cells are being developed as power sources for both the automotive and stationary power applications. The US Department of Energy, the Electric Power Research Institute (EPRI), and several small and big companies are currently participating in this jointly sponsored development activity. Fuel cells coupled with the state-of-the-art gas turbines, offer the potential to greatly improve the overall efficiency, and generate power cleanly, compared to gas turbines. Fuel cells could operate in a bottoming cycle mode or in a topping cycle mode with a gas turbine, depending on the type of fuel cell that is coupled with a gas turbine.

During the October 1995 DOE ATS Annual Program Review meeting, the Department of Energy sponsored a session on very high efficiency, clean power systems, which would be available by 2010. Such systems could utilize ATS program technology in latter phase of development. The proposed concept included combining fuel cells with industrial gas turbines. Preliminary studies by various manufacturers of fuel cells and gas turbines indicate major improvement in performance and emissions could be achieved by these combinations.

The development of combined fuel cell/gas turbine systems would require a feasibility assessment to optimize the combined system cycle, development of interface components, an accelerated development of candidate fuel cell(s), and prototype system performance evaluation. The gas turbine for this demonstration would be a production engine, with appropriate acceptability for adaptation to a fuel cell cycle.

The consensus was that existing fuel cell programs sufficiently address the fuel cell development issue -- from concept formulation and components evaluation phases, to the development and testing of fuel cells, with emphasis on reduction of projected cost of production fuel cells. Coupling of fuel cells with gas turbines will impact the operating parameters of each individual power source which is optimized separately. A new set of optimized combined operating parameters would be necessary for each individual power source in the system. The need for efficient interface components, such as heat exchangers and recuperates, was highlighted during the session.

Estimates for the cost and schedule of a development program, utilizing a fuel cell and an existing gas turbine, with system output of 10 to 20 megawatts, were also generated. With regards to the availability of "hybrid" systems for applications by the year 2010, it was indicated that preliminary activities on the development of combined systems should be started in the Fiscal Year 1997 at the latest.

GTA endorses the DOE session finding on very high efficiency hybrid power systems, and supports the development of hybrid power systems, which would combine fuel cells and gas turbines to generate highly efficient and clean power for power generation and cogeneration applications. GTA encourages the government to work with industry to scope and define a "hybrid" power generation system program, with schedules and funding estimates, to meet the government and market objectives.

Environmental Technologies

The environmental and efficiency pressures on gas turbine power plant technologies continue to increase. The gas turbine manufacturers have made significant improvements in pollution prevention utilizing sophisticated new combustion technologies to develop lower emissions while minimizing consumption of environmental resources such as water. In addition, these new technologies do not require the use of add-on devices such as Selective Catalytic Reduction (SCR) which in itself can be source of undesirable emissions. Coupled with these pollution prevention efforts have been improvements in gas turbine power plant efficiency which provides for protection of fuel resources while being more environmentally friendly.

While such improvements are resulting in reduced emissions, use of these new technologies results in emission characteristics which are neither consistent nor compatible with existing regulatory procedures and corrections. To resolve these important issues, there is a need to develop calculations and procedures for emissions which reflect these technologies. As such, the following requires investigation and development:

- Development of dry low NOx corrections;
- Development of corrections for combined cycle plants with chillers and evaporative coolers;
- Development of corrections for other pollutants as current ISO NOx corrections do not apply to other pollutants; and
- Development of corrections on duct burners and SCR's.

To address these needs, environmental development programs are required which address both analytical and testing efforts to establish proper corrections for these areas. These efforts are required to be performed and/or coordinated with each gas turbine manufacturer in order to ensure developed corrections and calculations are correct for the systems marketed by the manufacturers. A third party could solicit the information from the engine manufacturers and coordinate preparation of the appropriate changes. In addition, the program should include funding support to the engine manufactures and the third party for engineering and verification testing support.

Alternative Gas Turbine Fuels Testing

In the United States, gas turbine users have raised concerns regarding natural gas price and deliverability uncertainties. In many parts of the world, natural gas and other premium fossil fuels will not be available, limiting markets for US gas turbine suppliers. Adaptation of gas turbine systems for alternative fuel strategies will increase the competitiveness of US gas turbine suppliers to serve world markets. Currently, DOE coal and biomass gasification programs address these issues for the longer term but do not address near-term alternative opportunity fuels.

Many gas turbine users are interested in using alternative "niche" opportunity fuels such as, lower quality petroleum, natural gas and waste energy resources, e.g., landfill gas, refinery gases and/or low BTU gas fields. These opportunity fuels have lower costs than pipeline quality natural gas, but the gas quantities are often small with impurities that can create risks for the project owner and the gas turbine supplier.

The unknown fuel composition creates a need for combustor test programs to define risks and performance with these fuels, and to determine the best combustor modification requirements. Given that quantities of opportunity fuels are often small and qualities are non-standard, such test and modification programs can provide a major economic barrier to opportunity alternative fuel use.

A competitive program for alternative fuel combustor testing is proposed as part of the ATS program. The program would target all size gas turbines and be cost shared by industry. Such a program would solve near-term waste disposal problems in the United States and would open up export markets for US gas turbine manufacturers where such fuels are available.

A DOE program in the 1997-2002 time would characterize alternative fuel options, locations and quantities in the United States. The program would also sponsor multiple small gas turbine supplier combustor laboratory test programs of alternative fuels. Gas turbine supplier cofunding would include modification to combustors to burn alternative fuels and collection of field tests data.

Testimony Presented to the House Interior Appropriations Subcommittee for Fiscal Year 1997

by

The Integrated Petroleum Environmental Consortium

It is proposed that the U.S. Department of Energy establish and support a focused, university-based program, the Integrated Petroleum Environmental Consortium (IPEC), with the goal of increasing the competitiveness of the domestic petroleum industry through a reduction in the cost of compliance with U.S. environmental regulations. Federal support is specifically requested as part of the FY 1997 appropriation for the Department of Energy through the Fossil Energy account or other source the Subcommittee may determine to be appropriate.

The Crisis in the U.S. Domestic Petroleum Industry

The availability of energy will be the single most important factor in determining quality of life in the United States over the next century. Jobs, manufacturing output, transportation, and personal comfort are all tied to a plentiful, affordable energy supply. The petroleum industry has played a major role in meeting energy needs in this century. Petroleum will continue to be a major factor in the energy needs of the world well into the next century. However, the declining price of crude oil and the increasing cost of compliance with environmental regulations have combined to produce a decrease in domestic oil production in the U.S. The major oil companies have scaled down their domestic operations and refocused their exploration and production activities on foreign resources. The 8000 independent producers are faced with two options - producing from the domestic resource base or going out of business. At the same time, the independents are increasingly the inheritors of mature fields and reservoirs left behind by the majors. Yet compared to the major producer the independent is the most vulnerable to the declining price of oil and gas, the costs of environmental compliance and unfavorable tax policies. The independent producer has only one source of revenue--the sale of oil and gas. There is no vertical depth to his business. These factors have combined to not only greatly reduce the number of new wells drilled but also to accelerate the plugging of marginal or stripper wells. In the U.S. a stripper well is plugged every 30 minutes. At the same time new well completions are at a 45-year low.

Clearly this trend is not in the best interest of the U.S. in terms of energy self-sufficiency or national security. We are turning over control of our cost of production in terms of energy costs to foreign interests. If domestic exploration and production and refining are to continue to play a strategic role in meeting US energy needs, the domestic petroleum producer will require access to low cost technology for waste minimization and environmental remediation in exploration and production (E&P), refining, transportation and end use of petroleum.

In many cases this technology does not now exist in a cost-effective form. Conventional waste treatment and pollution control technologies always add to E&P, refining and transportation costs. These costs are increasingly out of proportion with the economic output of the petroleum industry. In 1991, four industry sectors (chemicals, petroleum, pulp and paper, and primary metals) incurred three-fourths of the $21 billion spent by U.S. manufacturers to comply with pollution control regulations. However, these sectors accounted for about one-fifth of U.S. manufacturers' value added (Office of Technology Assessment). In 1992, the domestic petroleum industry spent $10.5 billion on the environment. This is more than the top 300 oil and gas companies earned in profits that year and more than the industry spent searching for oil and gas in the U.S. in 1992. With oil at $16 per barrel at the wellhead, the industry spent $4 on environ-mental protection for every domestically produced barrel of oil - $41 for every man, woman and child in America (*Oil and Gas Journal* and the American Petroleum Institute).

All U.S. industry is caught in the conflict between national economic and environmental goals. Pollution control in the petroleum industry presents regulatory hurdles for U.S. domestic production and refining that producers and refiners in many other countries do not face. This places U.S. producers and refiners at a global competitive disadvantage. The U.S. petroleum industry needs cleaner, more cost-effective technologies and new approaches to lower the costs of complying with pollution and waste disposal regulations that U.S. society demands. A reduction in environmental compliance costs will have the greatest impact on the national economy when applied at this level - the level of the extraction industries. Lower energy costs make all industry more competitive. The petroleum industry and the nation would benefit not only from lower compliance costs, but also from the jobs and commerce preserved in the domestic petroleum industry and the related trade in capital equipment and professional services in industries that service the petroleum industry. New technologies for pollution control and remediation will also be an exportable product.

The Integrated Petroleum Environmental Consortium (IPEC)

For strategic and economic reasons the U.S. domestic petroleum industry must be able to compete with foreign producers and refiners. A major sector of our economy and our national interests are clearly at stake. Compliance with environmental regulations is a major factor in that competitiveness. The strategic and economic importance of this industry requires that industry, government and academia combine their resources and coordinate their efforts toward finding solutions for the environmental problems that represent the greatest challenge to the competitiveness of the domestic petroleum industry. The success of this effort will not only stimulate jobs in this industry sector, but also contribute in a large way to the environmental health of the nation. In response to this need, the four major research universities in the oil-producing states of Oklahoma and Arkansas have joined together to form the Integrated Petroleum Environmental Consortium (IPEC). The mission of IPEC is to increase the competitiveness of the domestic petroleum industry through a reduction in the costs of compliance to U.S. environmental regulations. Objectives specific to meeting the goals of the consortium include the following:

1. Development of cost-effective technologies and business practices to meet the challenges of environmental regulations to the competitiveness of the domestic petroleum industry.

As already noted, new technologies are needed in the petroleum industry now to provide cost-effective solutions to environmental problems in exploration and production and refining. The U.S. petroleum industry is already undertaking this challenge; however, the industry needs help. The domestic petroleum industry is devoting ever more of its resources toward meeting a growing body of environmental regulations as the price of oil declines. The inevitable result has been severe reductions in work force and closings. The domestic petroleum industry has lost over 500,000 jobs in the last decade. It is time for the federal government to re-evaluate the regulatory burden on the domestic petroleum industry and to help the industry develop the cost-effective technologies it needs to meet meaningful environmental standards. With a dwindling technical work force caused both by redirecting E&P operations and layoffs, the domestically-oriented work force is increasingly focused on environmental compliance, not technology development. Industry laboratories which were once on the forefront of technology development are now empty and dormant. What is left of the once busy industry research centers are technical service centers. The former research leaders still employed are now "putting out fires" and the independent producers rarely have a technical staff for any kind of R&D. The U.S. petroleum industry is relying more and more on technical professionals in academia for research. However, budgets are tight and only the most immediate of problems are being addressed. Even a 3-5 year time frame is often farther out than the industry can afford to look

The federal government should direct a larger segment of R&D resources to the development of new, cost-effective environmental technologies to support the domestic petroleum industry. A critical segment of this effort should be support of university research. A major part of this research funding should place emphasis on providing near-term solutions to these problems with direct input from the petroleum industry. In partnership with industry, IPEC can help provide these solutions.

The petroleum industry will measure the relevancy of research in terms of the tangible results produced. In the context of the vision of IPEC this means new, cost-effective technology made available to industry. The greatest impact on competitiveness on the domestic petroleum industry will be made by improved solutions to problems which have a significant economic impact on the industry. The research conducted within IPEC will, therefore, by necessity have a strong applied element.

IPEC will use an integrated team approach to technology development. The teams will not only be integrated with respect to scientific or engineering discipline but also integrated with respect to the technology development process itself. In other words the teams will also consist of members whose expertise is in scale-up and commercialization of new technology. If the work product of the team is to make a significant impact in the domestic petroleum industry the most important member of the team will be the end user of the technology. A teaming of investigators from different disciplines and representing different levels of the technology development process will greatly facilitate communication among the investigators and keep the team focused on solving the problem. The team approach is certainly the shortest path to making a meaningful impact on the competitiveness of the domestic petroleum industry.

This team and systems approach to solving real problems in the domestic petroleum industry will be the hallmark of IPEC. Fundamental research will be coupled with bench-scale testing of concepts, pilot testing, field demonstrations and technology transfer. The end user of the technology will always be heavily involved in technology development as an advisor and hands-on participant. As an investment in future technology development, undergraduate and graduate students will be integrated into every aspect of the work of the consortium. Undergraduate students will gain valuable experience working on consortium projects while graduate students will use consortium research work for their theses and dissertations. The integrated approach to technology development will give these students much needed pilot and field experience and industrial contacts.

Competitive business practices are perhaps equal in importance to technology development, especially to the independent producer. The development of new business practices with respect to accounting, taxation, finance, forecasting, etc. are needed which can put the producer in a better position to determine the financial risks of potential environmental costs and manage those risks in order to maximize profitability. Reduced financial risk and growth create jobs.

2. Training of environmental professionals as an investment in technology, policy and business development.

IPEC universities will continue to graduate scientists and engineers who have a strong foundation in a basic engineering discipline, physical science, or biological science with additional training in environmental technologies at the undergraduate or graduate level to produce environmental specialists. Environmental issues cut across many disciplines. Therefore, this additional training is cross disciplinary to give students a broad understanding of environmental problems. This includes environmental law and policy and the financial and economic impact of environmental regulation on the domestic petroleum industry.

Environmental policy curricula at IPEC universities will be enhanced to include a prerequisite foundation in a field of engineering or science. Those who shape environmental policy should fully understand the impact of those policies. IPEC universities also will develop new curricula to explore the boundary between environment and business in terms of accounting practices, economics, finance and taxation. A new kind of environmental specialist, invaluable to the petroleum industry, can arise out of the area where issues of environment and business converge.

In addition to training the environmental specialist, IPEC universities are committed to making all of their graduates environmentally aware. This is especially true of graduates in technical fields whose employment activities can have a direct environmental impact. These curricula will be enriched with an environmental component integrated into their course of study. The result of this enrichment will be a scientist or engineer who considers the environmental impact of a project up front and minimizes wastes.

3. Dissemination of information regarding technology development, legal and regulatory issues, and business practices which can impact the competitiveness of the domestic petroleum industry

Research results from all IPEC technology and business practice development projects will be documented through standard DOE reporting procedures. IPEC investigators also will deliver papers and contribute journal articles on noteworthy achievements. All resulting citations can then be picked up and disseminated through such standard online databases as DOE's "Energy Science and Technology", the American Petroleum Institute's "APILIT", and TU's "Petroleum Abstracts".

IPEC also will provide a central repository for all reports, papers, and articles resulting from its research projects. These documents will be available on demand from the repository for the fulfillment of external orders. Where appropriate, IPEC research results also will be compiled into databases for nationwide access via Internet.

Information concerning the databases will be distributed to the domestic petroleum industry and other interested users through exhibits at selected conferences, the trade literature, target mailings and Internet Listserv messaging. Every effort will be made to guarantee equity of access throughout the petroleum industry. IPEC also will establish a feedback mechanism through which the major and independent oil and gas producers can inform the R&D community of their experiences with new technologies as well as their technology needs.

IPEC also will serve as a resource for Congress, federal and state regulatory agencies and the domestic petroleum industry to provide an objective assessment of existing or proposed environmental regulations on the basis of cost/benefit and risk analysis.

Lastly, there also is an acute need for readily accessible continuing education opportunities for scientists, engineering, legal professionals, accountants, economists, etc. in the petroleum industry to provide environmental retooling and continual updating. The environmental field is progressing rapidly. Activities such as focused environmental seminars, workshops, short courses, telecourses, etc. can sharpen the skills of participants and act as conduits for new ideas and technologies into the petroleum industry.

Organization and Operating Practices of IPEC

The Integrated Petroleum Environmental Consortium (IPEC) is a consortium of four universities in Oklahoma and Arkansas: The University of Tulsa (TU), The University of Oklahoma (OU), Oklahoma State University (OSU), and The University of Arkansas (UA) at Fayetteville. The fiscal center of IPEC will be the University of Tulsa which is the sole subcontractor to BDM-Oklahoma which is the M&O contractor for the Bartlesville, OK Department of Energy facility, the National Institute for Petroleum and Energy Research (NIPER). Through NIPER, BDM Oklahoma and TU are responsible for implementation of the National Oil Program for the DOE. IPEC will be an extension of this effort.

The operational activities of IPEC will be directed by an executive committee composed of two faculty members and one research administrator from each of the four universities (TU, OU, OSU, UA). The chair of the executive committee will rotate annually among TU, OU, OSU and UA. IPEC will be very much industry driven to ensure that the consortium is meeting the needs of the industry and fulfilling its mission. The executive committee will be advised by an industrial advisory board composed of technical, legal and business environmental professionals from major oil companies and independent producers. The industrial advisory board will have the last word on funding decisions for technology development projects. If, in the opinion of the advisory board, a proposed project does not help fulfill the mission of the consortium the project will not be funded. All four of the IPEC universities have signed a memorandum of understanding forming IPEC and agreeing to this organizational structure.

The South-central Environmental Resource Alliance (SERA)

In order to bring additional resources into IPEC and further ensure the success of its programs, IPEC has entered into an alliance with the Waste-management Education and Research Consortium (WERC). WERC was established through DOE sponsorship to expand the nation's capability to address waste management issues through education, technology development and technology transfer. WERC's special niche is radioactive, hazardous and solid waste management. WERC's members are New Mexico State University, University of New Mexico, New Mexico Tech, and Navajo Community College in collaboration with Sandia National Laboratories and Los Alamos National Laboratory. The missions of IPEC and WERC will be enhanced by a synergistic collaboration between the two consortia as the South-central Environmental Resource Alliance.

Funding of IPEC

IPEC is seeking an appropriation of $4 million for FY 1997 and the succeeding fiscal years 1998, 1999, 2000, and 2001 through the Department of Energy. The consortium will be responsible for private sector and state support of no less than 25% of federal appropriations in FY 1997 and an average of 50% of federal appropriations over a five year period. The consortium will be subject to review as of September 30, 1998 and each 12-month period thereafterto ensure the effective production of data, regulatory assessments, and technology development meeting the stated goals of the consortium.

McDermott International, Inc.

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March 20, 1996

The Honorable Ralph Regula, Chairman
Subcommittee on Interior and Related Agencies
Committee on Appropriations
United States House of Representatives
B-308 Rayburn House Office Building
Washington, DC 20515

Dear Congressman Regula:

As a result of federal budgetary constraints, government programs have been subjected to critical review in an effort to "locate dollars" and cut spending. As you well know, the fossil energy programs of the Department of Energy have not been shielded from this difficult process. However, it is vital in this process and for the FY 1997 budget to ensure the continuation of programs that have and are continuing to prove successful due to prudent spending and effective policy implementation. The Clean Coal Technology (CCT) Program has been and continues to be a program that is attaining its well thought out energy efficiency, environmental, and economic objectives. As a major note of praise, the General Accounting Office cited the CCT Program as a model for successful public private cooperative ventures.

Babcock & Wilcox recognizes that it will be necessary for Congress to apply spending cuts to DOE programs as part of the effort to attain government wide spending reduction goals. In this process though, we believe it is critical to maintain the very elements of the CCT Program which have ensured its success. This can be linked to its management process. Market forces, rather than mandates, have determined which projects move forward. Any significant change in this process, including the development of arbitrary criteria for project terminations, would jeopardize the integrity of, and results from, this Program.

Babcock & Wilcox has been a major participant in this Program and, as a result of the Program, has gained $229 million of contracts for low NOx burners both in the U.S. and overseas. These contracts have provided environmental benefits to our nation and others, while helping the U.S. to maintain leadership in environmental technologies. Furthermore, we are seeking to move forward an additional technology that was selected in one of the early rounds of the CCT Program. This project holds the promise of very large megawattage application in the domestic and export market. It would yield major benefits to coal utilization in the U.S. However, we are not alone – foreign private and government interests with very active R&D and commercialization programs, are concentrating on this technology. They will likely dominate the field should CCT Program support for this technology be prematurely terminated.

The Honorable Ralph Regula
March 20, 1996
Page two

As you know, coal will remain our largest fuel source for power generation for many years to come. The development and deployment of clean coal technologies will allow the U.S. to utilize its most abundant and strategic fuel resource, coal, to meet current and future power generation needs in an environmentally sound manner.

Therefore, in your program funding considerations, I urge you to maintain your visionary leadership and focus on our most abundant indigenous fuel, coal; and provide continuity for the development of clean coal technologies which will facilitate the use of coal in an environmentally sound matter.

Respectfully,

E. Allen Womack, Jr.

EAW/dhk

Written Statement from
The Association of Research Libraries, Commission on Preservation and Access, and National Humanities Alliance

On the Fiscal Year 1997 Appropriations for the National Endowment for the Humanities

Interior and Related Agencies Subcommittee, Committee on Appropriations
United States House of Representatives and United States Senate
March 15, 1996

The National Endowment for the Humanities programs have been a catalyst in stimulating a national response to the preservation crisis. The federal leadership role remains critical to ensure the preservation of important cultural materials. NEH produced a plan in 1988 in response to a Congressional request to select and preserve for subsequent widespread use some three million embrittled volumes important to this nation's heritage and scholarship. The target of three million was but one-fourth of the twelve million unique and endangered titles and an even smaller percentage of the 80 million deteriorated volumes estimated to be housed in our nation's libraries and archives.

Recognizing that we could not save everything, the Endowment's Preservation Office -- which has since become the Division of Preservation and Access -- opted to encourage cooperative preservation programs by setting an achievable 20-year goal and focusing upon the most endangered, valuable, and unique materials. The microfilming that began in 1990 and continues to this year has proven the worth of such an approach. The modest federal support for NEH's programs serves as both a multiplier and a magnet: Over 70 libraries, archives, and other institutions have worked hard to identify and rescue over three-quarters of a million critically important materials. With support from NEH, these institutions have been able to leverage additional funds many times greater than the federal investment. Nearly one-third through the estimated time period, we are nearly one-third through our goal.

Threat to an Achievable Goal. The goal, however, already modest in comparison to overall need, is threatened seriously by budget reductions. At the March 6, 1996, House Interior Appropriations Subcommittee hearing, it was reported that budget reductions for preservation programs mean that 20,000 brittle books and 230,0000 newspaper pages will not be microfilmed this year. Over 900 archival and special collections of unique materials judged highly significant by U.S. institutions will not be preserved or made accessible, and 130,000 cultural objects identified as valuable and requiring preservation will continue to languish, undocumented and unavailable for study. Perhaps even more far-reaching for the general public, nearly half the people who would have been trained in preservation skills and awareness will be excluded from regional education programs.

A central tenet of the NEH brittle books program is that no book shall be filmed twice. This guideline is based upon the sound logic of economics at the national level. The need to avoid duplication has given rise to sophisticated national bibliographic systems that enable libraries to declare their intention to create microfilm and the needed time to complete the work. "The accomplishments of this program to date are profound and the implications are far-reaching," is how archivist and librarian Paul Conway described the program to colleagues in a recent library journal. "The present worth of this program to taxpayers is at least $70 million [much of that cost borne by libraries and archives] ... The value of this collection will continue to grow with time..." (Library Resources and Technical Services, January 1996, 40(1), p.75).

Reductions in the preservation program of NEH strongly affect not only the scholarly community, but all citizens concerned with our history on national, state, and local levels. As an example in purely practical terms, when the coordinators of a large, cooperative NEH-funded microfilming project learned that their three-year grant had been pared by one year, cultural and historical collections dealing with state histories of Georgia, Florida, Kentucky, North Carolina, and Tennessee had to be cut from the list of embrittled materials targeted for rescue. Some 37 percent of these collections, already identified as important for preservation microfilming, remain on shelves, slowly crumbling to dust.

If the brittle books program is not brought back up to its original target funding, these unique historical resources, along with tens of thousands of other primary sources, will never be available to scholars, students, researchers, or the general public. As primary resources, many of these unique materials provide content for new textbooks, K-12 curricula, and even the growing World Wide Web educational resources. Deteriorating volumes that are highly acidic due to the chemistry of their paper disappear quietly and steadily, with no remedy to stop the absolute loss of their information. This is particularly unfortunate for this group of identified materials because the research libraries of the country have worked effectively and collaboratively to select and prepare them in anticipation of microfilming. After this preparation and remaining on schedule with the first third of this filming, future reductions will meant that many collections, though targeted as highly valuable for our nation's needs, will be lost for posterity. Federal support is necessary to meet the nation's preservation needs.

Limits to Public Access and Training. We may first point to the scholarly and educational interests that are served by NEH's preservation program, but the numerous and varied contributions to small, isolated institutions and to individuals cannot be overlooked. Thanks to the regional preservation centers that have been established with NEH funds, preservation assistance and training have been provided to thousands of people who have, in turn, been prepared to identify, preserve, and make materials accessible to countless others who need them.

The SOLINET Preservation Field Service in the Southeast, for example, has taken a leadership role in providing training and continuing education for some 2,600 individuals through 131 workshops and presentations since 1988. The participants in these sessions have been able to rescue and preserve countless volumes in their local institutions, providing access to more materials to the American public.

Similarly, with NEH support, the regional field service of AMIGOS in the Southwest has developed a preservation capacity that has answered over 6,000 inquiries on how to preserve library and museum collections and trained 500 individuals to do basic repairs and collection conservation. Another 3,000 persons have benefitted from NEH-sponsored preservation presentations given throughout the region.

Such field service centers, funded largely by NEH grants, are the first to offer assistance when weather-related disasters present serious preservation problems in a local region or state. When tornadoes in Texas took roofs off buildings and exposed valuable local history collections to rain and wind, dozens of volunteers from the regional preservation field service responded to the call for assistance. They could act quickly and knew how to rescue the badly damaged research materials from destruction. Budget reductions will require that such programs be eliminated, or at the very least, severely curtailed. This is an especially great loss for the small historical societies and archives around the country that do not have the financial resources to address individually these concerns. Such organizations have relied on NEH-funded programs to assist individuals who want to learn more about preserving family documents and books, to train generalist staff to respond immediately to emergencies and disasters, and to provide centralized reference assistance for answering thousands of questions every year.

Funding from NEH's Division of Preservation and Access also has supported scientific research that will benefit collections at all sizes and types of libraries and archives. A new, simplified process for monitoring temperature and humidity developed by the Image Permanence Institute provides a cost-effective and simple way to determine how to improve storage environments for many types of historical and cultural materials, including paper, film, and magnetic media. Such far-reaching programs can only be spearheaded at the federal level. The lead taken by NEH in establishing this particular environmental research, which is also supported by foundations and institutions, will benefit us all by extending the useable lifetimes of hundreds of thousands of library and archival materials throughout the nation.

Federal Leadership in Cultural Progress. The point of these examples, of course, is to illustrate the broad ranging assistance that comes from NEH's Division of Preservation and Access. Although disbursed throughout the nation, these activities and programs are anything but random and duplicative, however. The National Endowment for the Humanities, in cooperation with other organizations concerned about preservation of our intellectual and cultural heritage, has carefully developed all its preservation programs to reinforce and strengthen this nation's capacity to protect and revere its heritage__from the well-established ivy-covered columns of a great university, to a small town's historical archives, to a family attic with forgotten genealogical records and photographs.

We must recognize that libraries and archives cannot carry out nationally-valuable preservation efforts on their own. The leadership exercised by the National Endowment for the Humanities has meant that hundreds of individual efforts are leveraged and added to an overall nationwide program, rather than standing apart and redundant. This principle holds true whether the program is microfilming of brittle books and newspapers, training of preservation experts, or conserving of special materials. A shared body of knowledge, skills, tools, and resources is being created that enables the individuals and institutions that form our nation's preservation enterprise to move ahead with shared confidence and expertise.

In fact, NEH's brittle books program is being hailed by librarians as "creating the first virtual library in the world that also happens to be a vital source for digital conversion." The brittle books collection exists in many locations, yet is accessible as an entity in national databases; when completed, it will rival the collections of many major research libraries in this country. "We owe it to present and future scholars (to say nothing of the taxpayers who foot the bill) to make it fully accessible to patrons as a complex collection with many uses and many points of access," states librarian Conway, who challenges colleagues to move the brittle books literature into the digital arena. Only with the NEH's carefully conceived and well executed plan could such a vision be entertained as a reality, one-third of the way through the brittle books agenda.

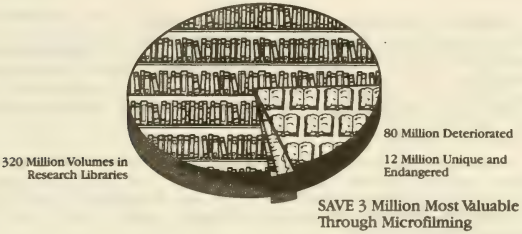
Today we are seeing the widespread results of federal funding and NEH leadership in the myriad preservation actions of local, regional, state, and national organizations. The Division of Preservation and Access has stimulated participation and cooperation from universities; state, public and special libraries; historical societies; archives; and museums, often with matching financial support from local sources. All 50 states have now invested in the NEH's Newspaper Preservation Project that is preserving the history of local communities as recorded in over 200,000 local papers.

Rather than reduce funding to support these preservation activities, now is the time to strengthen NEH's investment in a program that is producing far more than Congress anticipated even nine short years ago. The thousands of contributors to nationwide preservation efforts energized and catalyzed by NEH are now on board, not only in producing the expected numbers of preserved items, but in helping plan and create new preservation options and services. This is the time for Congress to stay invested in a strong program that will document our nation's historical and cultural legacy.

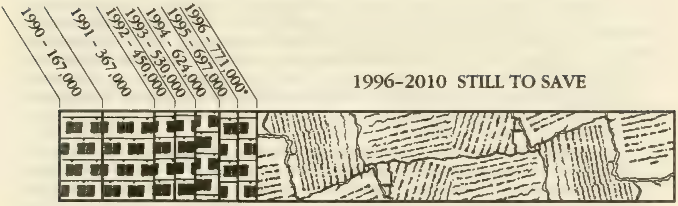
The 20-Year Brittle Books Program

National Endowment for the Humanities

1988 NEH Plan Funded by Congress


320 Million Volumes in Research Libraries
80 Million Deteriorated
12 Million Unique and Endangered
SAVE 3 Million Most Valuable Through Microfilming

NEH Progress 1990–1996



*Below target due to decreased funds

WRITTEN STATEMENT FROM NOXSO CORPORATION
SUBMITTED BEFORE THE SUBCOMMITTEE ON INTERIOR APPROPRIATIONS
UNITED STATES HOUSE OF REPRESENTATIVES
MARCH 14, 1996

On behalf of the entire staff of NOXSO Corporation, I wish to express deep concern regarding the effects of federal deficit-driven pressures which your committee faces as it begins debate on the FY 1997 budget. In that debate we hope that Congress will keep in mind some important truths relating to the Department of Energy's (DOE's) Clean Coal Technology (CCT) program:

1) Leadership of national energy policy and related management of scientific and engineering research are essential roles for the federal government. It is vital that there be at least one institution in our society that focuses attention on the development of energy resources to strengthen our competitive economy, to protect our environment, and to maintain our national security. Indeed, if there is any value at all of the federal government, it is its unique ability to maintain "long view" energy technology options which protect our national economy, environment and security.

2) DOE's Clean Coal Technology program exists primarily to enable Americans to have such "long view" options as continued access to enormous domestic coal reserves as an energy source. Historically, pricing volatility of natural gas and oil, and susceptibility to supply interruptions during global crises, point out the importance of maintaining that coal "option" -- and the resulting importance of CCT development.

3) A 1994 report by the GAO cited DOE's Clean Coal Technology program as a model for successful public/private partnership. Private sector program participants have contributed $2 for every $1 contributed by the federal government, making the program one of the most successful ventures ever led by a government agency. Further, that federal contribution is required to be repaid by the private sector participants. CCT funding is not a "handout". Once the ongoing CCT projects are completed, the CCT program will end and excess funds returned to the U.S. Treasury.

4) The CCT program is highly focused and continues to prove that technically and commercially viable technologies are available to maintain coal as a clean energy "option" for America. As the CCT program nears completion in the next several years, it will demonstrate even more such technologies, including the NOXSO Process which virtually eliminates air pollution emissions of SO_2 and NO_x from combustion of coal, while simultaneously producing marketable chemical byproducts instead of solid wastes. Within the last year, commercial sales of clean coal technologies exceeded half a billion dollars, creating and supporting more than 3,400 jobs.

As Congress debates the FY 1997 budget, we hope that it will recognize the importance of completing the CCT program. It is not exaggerating to say that reduction or elimination of funding at this time would endanger the nation's future economic competitiveness and security. Such action would also break commitments made by the federal government several years ago, thus destroying important bonds of trust with industry. I urge you consider all of these factors in approving continued funding to complete the DOE CCT program.

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The Partnership

Southern California Economic Partnership

Testimony in Support of U.S. Department of Energy
Alternative Fuel Transportation Programs
House Subcommittee on Interior Appropriations
March 7, 1996

The Partnership

Mr. Chairman, members of the Subcommittee, I am John Cox, President of the Southern California Economic Partnership, referred to as "The Partnership".

I come before you today to testify in support of funding for programs within the Department of Energy's budget for the Building, State and Community Sector and the Transportation Sector. In particular, we support the State Energy Program within the Building, State and Community Sector and the Advanced Battery Consortium within the Transportation Sector.

According to the Energy Policy Act, Clean Air Act and other relevant laws, the federal government plays a pivotal role in helping advance the research, development and deployment of alternative fuel (AFV) and zero-emission (ZEV) vehicles. The federal government has a distinct part to play in enhancing energy security and improving the environment by facilitating the advance of alternative fuel and zero-emission vehicles. It is The Partnership's goal to work in concert with federal, state and local government agencies to help develop an efficient, advanced transportation infrastructure for Southern California. Let me explain the role The Partnership will play in achieving these goals and then describe the reasons why we support funding for these programs.

The Partnership is an extremely unique organization identified in the Southern California Association of Governments (SCAG) "Regional Mobility Plan" and the South Coast Air Quality Management District (SCAQMD) "Air Quality Management Plan" as the implementation organization assigned the mission to: "Accelerate The Deployment of Advanced Transportation Technology" throughout the greater Los Angeles region.

Advanced Transportation Technologies (ATTs) are intended to provide consumers with products and services that preserve the same quality of life and convenience of mobility they experience today. These measures are expected to achieve the greatest emission reductions if an aggressive implementation program is put in place to achieve moderate to high levels of market penetration. Section 182(e)(5) of the Clean Air Act permits the inclusion of long term measures which rely on advancement of technologies. These measures are designed to play a supporting role to the California Air Resources Board's (CARB) zero-emission vehicle and alternative fuels emission reduction programs.

The implementation of ATTs, facilitated by The Partnership through industry and government clusters collaboration, utilize market based transportation strategies to deploy their technology as quickly as possible and gain additional, or accelerated market penetration above what other measures in the plan achieve.

ATTs include:

Zero-Emission Vehicles/Infrastructure
Alternative Fuels/Infrastructure
Smart Shuttle Transit/Infrastructure
Intelligent Transportation Systems/Infrastructure
Telecommunications/Infrastructure

The Partnership Organization

The Partnership is established as a non-profit organization with a Board of Directors comprised of high-level business and institutional officials, including SCAG and SCAQMD representation, who provide overall policy guidance to the entire organization. The Partnership, with an indirect relationship with SCAG, SCAQMD, Caltrans, and Project California, develops its activities and recommendations through Cluster Group collaboration. The Board of Directors is made up of one executive level representative from each of the following industry or institutional categories, which have some type of advanced transportation technology involvement:

1. Accounting
2. Aerospace
3. Auto Industry
4. Banking
5. Building/Development
6. California Air Resources Board
7. California Energy Commission
8. Caltrans
9. Community College Training
10. Economic Development
11. Electric Utility
12. Engineering
13. Environmental Community
14. Environmental & Transportation Equity
15. Gas Utility
16. Labor Union
17. Local Research & Devel.(CALSTART)
18. Marketing Communications Community
19. Oil Industry
20. Project California
21. Research Concepts
22. South Coast Air Quality Manag. Dist.
23. Southern CA Assoc. of Governments
24. Telecommunications
25. Transportation Community
26. Universities

The Partnership Clusters Group Advisory Panels

The Partnership is organized with a series of Cluster Group Advisory Panels and Working Groups along with technical staffs representing their areas of responsibility. The Clusters and their staffs will be responsible for identifying sales and implementation barriers and recommending institutional as well as product marketing strategies.

The Partnership Cluster Groups have the task to facilitate dialog, collaboration and recommendations dedicated to enhanced consumer utilization of ATT products. This task requires that government and industry together identify how to accelerate the deployment of these technologies, which will include modifying market conditions. The organization provides fundamental direction and guidance to local governments and technology developers through education and outreach and by facilitating the creation of public/private business partnerships.

The Partnership, through its public/private participatory structure, is uniquely capable of providing networking and guidance to those parties interested in the deployment of advanced transportation technologies throughout Southern California. Stakeholder "Cluster Group" meetings on each technology are held on a regular basis.

For example, in the case of alternative fuel vehicle infrastructure, The Partnership, in concert with the Department of Energy and the Department of Transportation, hosted a all day stakeholders workshop this past fall to acquaint local government officials and staff with the issues and policies associated with the deployment of clean fuel vehicles. Thirty-three cities and 140 individuals participated in the workshop to determine how they could help with the deployment of clean fuel vehicles.

In addition, The Partnership has developed an Outreach/Education Program including MODEL CITY STARTER KITS to assist local governments with establishing clean fuel vehicle policies and infrastructure deployment programs which will facilitate the utilization of clean fuel vehicles by their constituents.

The Partnership's ZEV/AFV Investment

The Southern California region has already invested heavily in efforts to diversify the mode of transportation for the region away from sole reliance on gasoline-powered vehicles to greater use of alternative fuels and electricity. Foremost among these efforts is the California Air Resources Board's commitment with the automobile industry to place 5,000 zero-emission vehicles on California roads by the end of 1997. The agreement ensures that federal funds that facilitate this progress will be highly leveraged by investments by the State and automobile manufacturers.

Southern California is the bellwether which will determine the near term (and perhaps the long term) ability for these alternative fuel transportation modes to penetrate the market and provide a true option for consumers. Federal participation consistent with the Energy Policy Act and the Clean Air Act can help speed these advancements and build a more secure energy future.

ZEV/AFV Program Funding

Funding is needed to help create the necessary infrastructure for and to facilitate greater deployment of alternative fuel and zero-emission vehicles in key regions of the country. The Partnership's members are making major investments to increase alternative fuel vehicle fleets, encourage standards for developing ZEV/AFV infrastructure and help develop planning documents that enable the more comprehensive use of ZEV/AFVs in Southern California. Members are also working at the state and local levels to develop public/private partnerships that facilitate ZEV/AFV infrastructure and deployment. Additional funding to match private, state and local contributions is necessary for The Partnership and the citizens of Southern California to realize our goals.

In particular, The Partnership supports funding for the Department of Energy's budget for Building, State and Community and Transportation Sectors. We believe the State Energy Program within the Building, State and Community Sector and the Advanced Battery Consortium within the Transportation Sector provide valuable opportunities to help maximize the advancement of zero emission and alternative fuel vehicle technologies and the infrastructure to support them. The state block grants and funding for alternative fuel vehicles will provide valuable support for the Clean Cities program, public education, infrastructure, research and development, and technology utilization.

Consistent with this Subcommittee's recommendation that each agency fund its purchases of alternative fuel vehicles and a possible future Executive Order on this issue, The Partnership will work with other Subcommittees and agencies to help make this happen. Continued funding support for technical assistance from the Department of Energy to other agencies to help realize this goal is also important. Lastly, we urge the Subcommittee to provide full funding for the Advanced Battery Consortium, which provides a valuable partnership to help develop the batteries that will be part of the next generation of electric vehicles.

We believe these programs provide opportunities for the Department of Energy to partner with state and local governments and businesses to help promote research on AFVs and zero-emission technologies, develop an appropriate infrastructure and help commercialize and utilize appropriate technologies.

The Department of Energy's role in the development and deployment of alternative fuel and zero-emission vehicles has been refocused in FY 1996. We are hopeful that the focus can remain on the areas that enable the Department to effectively utilize industry, state and local resources to develop very necessary advanced transportation technologies.

Conclusion

The Partnership believes that advanced transportation technologies, including zero-emission vehicles and alternative fuel vehicles, are the answer to improving mobility, air quality and energy security while preserving convenience. Our members also believe Southern California will lead the nation in the deployment of ATTs.

Mr. Chairman, we hope your committee and Congress will look to The Partnership as a model for creatively seeking solutions to the nation's energy and environmental problems as they relate to transportation issues. We have successfully merged different perspectives and priorities for the sole purpose of the deploying ATTs in our region. The Southern California Economic Partnership will continue to do its part to make Advanced Transportation Technology implementation a success. We accept that responsibility.

Congressional support, particularly in the form of funding the primary investment in the clean fuel infrastructure programs that support these efforts is critical not only for the health of local communities, but for the country at large. We, and the many other organizations and businesses involved in developing an alternative fuel transportation future are striving to make it happen. I hope you will help in every way you can.

Statement of
the Petroleum Marketers Association of America
Advocating A
DOE Conservation Research and Development Program For Home Heating Oil
Before the
Interior Subcommittee
Committee on Appropriations
United States House of Representatives
Washington, DC
March 7, 1996

The Petroleum Marketers Association of America, (PMAA) a national federation of 40 state and regional trade associations representing almost 10,000 independent marketers of petroleum products, equipment and service across the country submits the following testimony regarding appropriations for oil heat research and development. While eighty-nine percent of PMAA's members are classified as small businesses by the Small Business Administration (SBA), collectively we sell over three quarters of the home heating oil and half the gasoline nationwide. PMAA requests your support for $1.2 million dollars to fund a research and development program at the Department of Energy.

PMAA believes the oil heat research and development program is extremely worthwhile not only for consumers of oil heat, and PMAA's company members, but also for the nation as a whole. PMAA as an association itself receives none of this funding; rather, it is all allocated to the Department of Energy (DOE)'s Brookhaven National Laboratory (BNL).

The on-going DOE Combustion Equipment Technology Program for Oil Heat Research and Development at BNL has been conducting basic research for the past 15 years to lessen energy consumption and reduce pollution. The need for reducing the nation's oil consumption is clearly an objective of the National Energy Policy Act of 1992. We believe that the research conducted under this program is an effective way of ensuring that the goals of this important Act become reality.

Conservation of fuel has been a priority of this program at the Department of Energy and the research conducted at Brookhaven for many years. Additionally, Brookhaven has conducted vital research in an effort to reduce emissions for years before the passage of the 1990 Clean Air Act. The Brookhaven program has been striving toward these two objectives by combining technological innovation with consumer education.

Oil Heat R&D Benefits Consumers

The BNL Combustion Equipment Technology Program is wholly dedicated to improving the heating systems used by the 12 million U.S. homeowners who heat with oil. These homeowners will see **a fuel savings of over $10 billion** by the end of this decade based upon work already completed at Brookhaven, and research already completed can save consumers another $39 billion.

The fuel savings work that Brookhaven has undertaken since 1975 is best illustrated by the following three statistics: 1) In 1975, the average oil-heated home used between 1200-1400 gallons of oil per year. In 1990, the average gallon use per home was between 700-800 (that includes oil use during the extreme cold snap in January 1990). This translates to about a **50% reduction in usage** per home; 2) For every dollar invested in Brookhaven's research program, more than

$1000 has been saved to date; and 3) The **oil savings forecast will be over $39 billion** in the next two decades, largely due to the scientific advances developed at Brookhaven.

The core of Brookhaven's success is its technology research program. The lab is dedicated to improving every aspect of the heating process, from oil burners to boilers to chimneys and vents. Among the specific advancements is an innovative electronic device - the Flame Quality Indicator. The indicator uses a low cost flame scanner to measure flame radiation, which indicates what adjustments are needed for maximum efficiency. This simple inexpensive device can dramatically improve oil heat efficiency by reducing fuel use by about 290 million gallons a year and result in a $3 billion savings over 10 years. New flame retention equipment and retrofit devices for existing oil burning systems were estimated to save consumers over $10 billion through reduced oil usage by the end of this decade, the 1990's.

Another example of their progress is an improved burner design which will result in a savings of up to 1 billion gallons of distillate per year due to its efficiency. Boilers have also been greatly improved due to Brookhaven research; a low mass boiler is now being manufactured. This type of boiler is capable of operating with an annual efficiency of 85% and will conserve about 1.8 billion gallons of fuel per year.

Brookhaven is currently studying ways to improve safety and efficiency through advanced venting systems which replace chimneys to help cut down on the heat loss that occurs in homes with conventional chimneys. Potential energy and cost savings of the new venting systems are estimated to be 12% of annual fuel use or $9 billion over the next ten years.

In addition, Brookhaven has been able to successfully augment its research efforts by utilizing heating oil dealers to educate their customers on methods to more efficiently heat their homes. In 1990, Brookhaven participated heavily in DOE's *Heat Smart* campaign. By working in conjunction with PMAA member companies, they were able to provide approximately **6 million homeowners** with valuable tips on conserving fuel and reducing heating costs.

Continued R & D Program is Needed

For FY96, Congress allocated $1,000,000 of DOE's conservation budget to continue the Brookhaven combustion research program on oil heat equipment. This funding level is equivalent to only 8.3 cents for research and development per oil heated home. The combustion program is an element of a key activity called Heating and Cooling Equipment, specifically the Space Conditioning Equipment Program, within the office of Building Technologies, which reports to the Assistant Secretary for Conservation and Renewable Energy.

PMAA strongly supports continuing the current research effort and believes that there are several additional projects that should be undertaken by DOE in FY97 that are equally as promising in terms of costs and benefits as the example of the flame retention head burner. These projects include further efficiency advantages, advanced combustion, and technology transfer programs to the private sector. Based on annual fuel oil consumption of one quadrillion BTU, these projects are expected to save consumers as much or more than past successes of the program are expected and have saved. **Estimates of the cumulative savings over 20**

years for each of the three program elements range from $779 million to $12.6 billion. The total of all elements could save up to $39 billion.

Federal Role Is Needed

Due to the non-monopoly nature of operations of fuel oil marketers who compete freely with one another, a federal R&D role is needed for the oil heat industry, even more than for competing industries that benefit from strong federal participation in R&D. The federal R&D programs for other heating fuels augment the work of the Gas Research Institute and the Electric Power Research Institute, which are funded by hundreds of millions of dollars in surcharges on gas and electricity rates that are approved by federal and state regulatory authorities.

By contrast, local oil heat marketers have no exclusive sales territories and no government approval or means to impose R&D surcharges. Major oil companies, which produce and refine oil products, do not accept responsibility for any R&D activities on behalf of equipment manufacturers or any end users, including space conditioning, automobiles or airplanes.

Most manufacturers of oil heat equipment also make gas and/or electric appliances. With a relatively smaller sales potential in oil, it is understandable that equipment manufacturers commit their limited resources to the gas and electric equipment that is the focus of the government and utility research efforts.

Therefore, it is appropriate for the federal government to provide funding for oil heat R&D, in order to maximize conservation options to the 12 million U.S. homes dependent on oil. While PMAA does not subscribe to the view that energy supplies will dry up tomorrow, it would be wise to have a strong conservation program to reduce consumer energy demand. With an investment of only $1.2 million, the federal government can strongly encourage reduced consumer demand for home heating oil by taking advantage of exceptionally high benefit/cost ratios for oil heat R&D. This funding level represents approximately $0.15 per oil heating home to produce oil conservation and environmental benefits that will be shared by all Americans.

Rationale for Request

PMAA is aware of the limitations on the federal budget, and supports efforts to lower the deficit through reductions in federal spending. PMAA is not asking for additional budget authority. PMAA believes that the budget proposal is more than adequate for DOE to meet the needs of its various constituent publics, including oil heat.

PMAA believes that if Congress continues to fund energy R&D programs, then it is only fair to the 18 percent of American taxpayers who heat with oil to receive the necessary research and development to save later. PMAA strongly urges the support of this Subcommittee for a necessary portion of DOE's total budget to continue the BNL oil heat program with such an excellent and beneficial track record. **As previously mentioned, PMAA supports an annual funding level of $1.2 million, which, while an increase over previous years, will enable the program to continue at its current operating levels, and develop new areas of energy research.**

These new areas include technology options to obtain increased energy value from fuel oil to be utilized for residential heating and cooling applications (at efficiency levels above and beyond 93%). These options include oil-fired cogeneration units, thermal heat pumps, direct drive heat pumps, and heat activated chiller designs. There is a strong potential for oil-fired heat pumps to be developed with a Coefficient of Performance (COP) as high as 1.9. This means in effect an energy efficiency for the heating system which is better than 100% (a COP of 1.9 = 190%). This system would of course obtain its additional energy from a source such as ambient air or ground water (just like an electric heat pump system). Additionally, PMAA believes that Brookhaven should explore the potential for technology transfer of highly efficient military equipment to residential heating.

RESEARCH TRIANGLE INSTITUTE

RTI

F. Thomas Wooten
President

March 20, 1996

Honorable Ralph Regula
Chairman, Subcommittee on Interior and Related Agencies
U.S. House of Representatives
Washington, DC 20515

Dear Representative Regula:

This letter is provided, for the record of the March 7, 1996 hearing of the Subcommittee on Interior and Related Agencies, to encourage support of the Department of Energy's (DOE) Fossil Energy Research and Development budget. The Research Triangle Institute (RTI) is an independent nonprofit organization performing research in many disciplines for government, industry, and other clients throughout the United States and abroad. Our current research revenue is more than $141 million annually. RTI was incorporated in 1958 and is located in the center of North Carolina's Research Triangle Park.

Coal is this country's most abundant fossil fuel. More than one-fourth of the world's known coal reserves lie within U.S. borders. Coal deposits are located beneath 38 of our 50 states and they represent 90 percent of all known U.S. fossil energy resources. Low-cost energy supply is a major determinant of economic competitiveness and quality of life. Relatively low energy costs enable a nation to produce goods and services that compete favorably in both the domestic and international marketplaces. If coal is to remain feasible as a major energy source, we must develop cleaner and more cost effective technologies to utilize coal. This could be accomplished with financial assistance from the Federal government to offset the significant costs and risks associated with developing these technologies. This would allow for partnerships among government, industry, and research organizations like RTI to combine resources to develop these mutually beneficial technologies.

As one example of how such a partnership can work, RTI has teamed with Eastman Chemical Company, Bechtel, and DOE's Indirect Liquefaction group at the Pittsburgh Energy Technology Center. This partnership addresses the need to develop a new coal-based process to make methyl methacrylate, a high value chemical used in coatings, automobiles, and appliance housings (such as coffee makers). More than 4 billion pounds of this chemical are produced from petroleum each year in the U.S. alone, corresponding to about $3 billion in sales. Because of the environmental problems of the current process used to make this chemical, new plants are being located overseas to meet increasing demand. Successful completion of this

3040 Cornwallis Road • Post Office Box 12194 • Research Triangle Park, North Carolina 27709-2194 USA
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project will provide the basis for an environmentally benign process to make this product in the U.S.--at a price that can compete with overseas plants. It is likely that this project would not have been started without DOE support.

This project demonstrates how DOE can bring together a team to develop new technologies--and the jobs that follow. As prime contractor, RTI is both coordinating the work and carrying out the research needed to develop the technology. Eastman is undertaking a substantial role in the research and providing 100% of its effort as cost share under this project. In addition, as one of the largest chemical companies in the world with an annual sales of $5 billion and employing more than 13,000 people in the U.S. and 17,000 worldwide, Eastman is in a position to commercialize the resulting process. Bechtel, one of the largest engineering firms in the world, is providing design and cost guidance for the overall process. DOE is providing the majority of the funding, as well as technical guidance. The partnership among these organizations is a significant example of how DOE can serve as a catalyst in new technology development.

RTI encourages the Subcommittee to provide DOE with sufficient funding to continue developing technologies that expand the use of coal.

Sincerely,

F Thomas Wrote

FTW:jf

SEIA
SOLAR ENERGY INDUSTRIES ASSOCIATION 122 C Street, N.W. 4th Floor Washington, D.C. 20001-2109 (202) 383-2600
Fax: (202) 383-2670

TESTIMONY

by

Scott Sklar
Executive Director

SOLAR ENERGY INDUSTRIES ASSOCIATION

before the

COMMITTEE ON APPROPRIATIONS
SUBCOMMITTEE ON ENERGY AND WATER DEVELOPMENT
U.S. HOUSE OF REPRESENTATIVES

on

FISCAL YEAR 1997 APPROPRIATIONS
for
SOLAR ENERGY (AND RELATED) PROGRAMS

of the
U.S. DEPARTMENT OF ENERGY

February 29, 1996

WASHINGTON, D.C.

SOLAR ENERGY INDUSTRIES ASSOCIATION

Introduction

The Solar Energy Industries Association (SEIA) is the national trade organization of the photovoltaics and solar thermal manufacturers and component suppliers, composed of over 550 companies, 400 of whom are members of SEIA's affiliated state and regional chapters. Today's U.S. solar energy industries are comprised of manufacturers, component suppliers, distributors, and installers involved in the development and deployment of a wide variety of solar energy systems, and includes hundreds of small entrepreneurial businesses across the nation as well as Fortune 500 corporations.

SEIA is recommending a solar research & development budget at the U.S. Department of Energy for FY 1997 that is roughly equivalent to FY 1995 funding levels. SEIA believes this is the minimum acceptable level of the federal research program in order to insure that the U.S. global technical leadership results in sustainable businesses. In other words, let us not allow the U.S. to fall into the old path of "VCR Syndrome," where the U.S. invents technology only to lose out on the hundreds of thousands of jobs and millions of dollars of profits on commercializing these technologies.

The federal solar programs are well managed, have the highest proportion of industry cost-shared activity, are on time, and on budget. Our industry, which is primarily small business, has consistently met its obligations -- a significant achievement for a small, emerging industry.

The member companies of SEIA have one basic requestto Congress: stick with the commitments made to our industries which began under the Bush Administration and continued under the Clinton Administration. We have and will continue to meet the commitments we made to the federal government, to the American people.

Summary

I am here to today to make three points, which together should compel the Subcommittee to support the solar energy programs:

1. Federal spending for solar energy technology development, especially spending that is cost-shared with the private sector, is a wise investment that pays off.

2. Failure to fund the solar energy programs at critical levels would represent nothing less than abrogation on the part of the U.S. government of multi-year commitments to U.S. industry.

3. Solar energy budget cuts along the lines of those made in FY 1996 will result in unrecupable co-investment and will drive private investment from our emerging industries.

SEIA's FY 1997 Appropriations Recommendations

SEIA's FY 1997 budget recommendations for the U.S. DOE's solar energy programs, outlined in detail in Attachment A, were crafted by the solar industry in consultation with state governments, the research community, and utility and building industry leaders to result in the most cost-effective leveraging of federal dollars to bridge the gap between research and commercial viability.

The following table summarizes our basic recommendations:

SEIA'S FY 1997 SOLAR ENERGY R&D APPROPRIATIONS RECOMMENDATIONS ($ millions)	
Core Technology Programs	
Photovoltaic Energy Programs	92.2
Solar Thermal (Electric & Industrial) Programs	32.5
Solar Buildings Technology Research	6.25
Other Programs	
Solar International	9.0
Renewable Energy Production Incentive	5.0
Resource Assessment	4.0
FEMP (IHEM)	3.5
Energy Storage	5.0
Hydrogen (through renewable energy resources)	5.0

Photovoltaic (PV) Programs

During the last several months, ground-breaking ceremonies for three automated photovoltaic module manufacturing plants were conducted in Michigan, Virginia, and Washington and three more are expected to be launched before the end of 1996. Two new U.S. manufacturing ventures overseas were announced for Russia and South Africa. This represents the largest growth in manufacturing capacity in the history of photovoltaics and American industry is the driving force in the expansion. The federal government has been instrumental in driving this growth trend by sharing the risk with industry in the development of new manufacturing processes, materials, and by facilitating domestic market engagement.

These phenomenal advances in manufacturing capacity came as no surprise to those of U.S. in the industry and they have occurred for three primary reasons. First, the opportunities in the international markets are booming, with two billion people currently without electricity and another billion with less than 10 hours of reliable power per day. International markets, primarily in the developing world, already account for over 70 percent of U.S. photovoltaics exports. With the new multilateral bank loans for rural electrification in India and Indonesia to utilize solar technology as a method of sustainable economic development, these markets are prime for our industry. International markets, on average, have grown by 30 percent annually over the last three years, a trend which is expected to continue through this decade. However, competition from our European and Asian counterparts is stiffening as a result of higher levels of their governments' investment and support. If the American PV industry is to maintain its world leadership position, the existing technology and market development partnerships that have been forged with the U.S. government will need to be continued to meet these challenges.

Second, these new manufacturing facilities are the result of a significant departure from the business-as-usual government research and development programs. During the Bush Administration, the PV industry embarked on a cost-shared PV Manufacturing Initiative (PVMaT) program in conjunction with the Department of Energy to overcome technological hurdles to scale -up manufacturing. The program was designed to build on the Japanese experience that proved the effectiveness of reducing costs through more efficient manufacturing techniques, rather than through pure research on cell efficiencies. While the manufacturing efficiency program has led to stunning successes in lowering production costs, its job is not complete. American industry has re-invested its revenues and has been able to attract venture capital based on the expectation that its government would follow through on its promise to assume some of the technology development risk. However, budget shortfalls have reduced the scope and term of the PV-MaT initiative and threaten the survival of many companies that invested in its merit.

Third, during the Clinton Administration, the PV industry entered into two cost-shared programs with the federal government designed to build market confidence in the electric utility and building industry sectors. The PV-COMPACT and PV-BONUS programs are critical to the evolution of aggregated domestic markets and have provided instant credibility for the PV industry in the eyes of the finance and banking communities that have provided the necessary capital for manufacturing facility construction. However, recent budget cuts have threatened these programs as well.

The PV-COMPACT program established a cost-shared market acceleration mechanism by engaging over 90 electric utilities (representing half of the U.S. generation capacity) and formed the Utility Photovoltaic Group (UPVG) with support from state regulators and state consumer advocates. The PV-COMPACT approach has been to promote interest and investment by the electric utility industry in photovoltaic technology with a goal of building a sustainable market aggregation program. Only in this way will the technical capacity be built in the electric utility sector necessary for multi-year, mass quantity purchases.

WRITTEN STATEMENT OF JOHN WARREN MOTTER
EXECUTIVE PROJECT DIRECTOR, SIERRA PACIFIC POWER COMPANY
RENO, NEVADA
SUBMITTED BEFORE THE
SUBCOMMITTEE ON INTERIOR APPROPRIATIONS
U.S. HOUSE OF REPRESENTATIVES
MARCH 7, 1996

I. INTRODUCTION

This testimony concerns fiscal year 1997 funding for the Department of Energy's Clean Coal Technology Program. This written statement is submitted on behalf of Sierra Pacific Power Company.

Sierra Pacific Power Company (hereinafter, "Sierra") is an Investor Owned Electric, Gas, and Water Utility serving customers in over 50,000 square miles of Northern Nevada and Northeastern California. In 1992, pursuant to round four of the Clean Coal Technology (CCT) Program, Sierra was awarded a Cooperative Agreement for cofunding of permitting, engineering, construction and demonstration of the "Piñon Pine Project", a nominal 100 megawatt Integrated Gasification Combined Cycle (IGCC) powerplant .

This plant, currently in construction at the site of Sierra's existing Tracy Power Station (approximately 17 miles east of Reno, NV), is scheduled to be completed late this year. In early 1997, Sierra plans to begin demonstration (Phase 3 of the Cooperative Agreement) of the advanced Kellogg-Rust-Westinghouse (KRW) gasification process and "hot gas clean up", an advanced family of technologies promising both high efficiency and superior environmental performance. A brief description of the project is attached.

The CCT program is a unique, jointly funded government-industry collaboration involving majority funding of all projects by industrial participants, with the objective of demonstrating a new generation of innovative, efficient and environmentally friendly coal-based technologies. The Piñon project is to be a demonstration of such a new technology. FY 97 funding is essential to the successful completion and demonstration of this project.

Sierra recognizes the difficult choices and decisions which face Congress as it continues to reduce federal spending. As the Subcommittee considers FY 97 Appropriations, we urge that the Members provide adequate funding to honor commitments made to the 43 projects selected in the CCT Program--including the

Piñon project. Sierra believes that Congress should allow market forces to determine which projects should proceed, and receive funding earmarked for each. However, if and when individual projects fail to proceed, we believe that the funding for such projects should be returned to the U.S. Treasury to assist in deficit reduction.

II. IMPORTANCE OF FUNDING STABILITY TO THE CLEAN COAL TECHNOLOGY PROGRAM AND SIERRA PACIFIC POWER COMPANY'S PIÑON PINE PROJECT

The Clean Coal Technology (CCT) Program has been an unprecedented, and model program embodying unique aspects of government-industry cooperation to achieve national policy objectives. The CCT Program has had many successes to date, and is on the brink of achieving additional successes critical to the long-term objectives of the program. Core to the fundamental nature of partnerships under the CCT Program has been the nature and stability of the government investment in the Program, allowing industrial participants such as Sierra, to commit major funding and other corporate resources to these projects. That certainty of the government's investment, clearly articulated in the CCT Program's enabling legislation, and the consequent decoupling from year by year FY appropriations, was absolutely critical to Sierra's decision to proceed with the Piñon Project.

Sierra has had the privilege to participate in the Department of Energy's Clean Coal Technology Program. Sierra is sponsoring the 100 megawatt Piñon Pine Project, a high efficiency, ultra clean coal-based powerplant being constructed about 17 miles east of Reno, Nevada to provide clean economical power to meet its customers needs, and to achieve the national goals of this project. This project was selected for funding in 1992, successfully completed a major Environmental Impact Statement (EIS), received all approvals for construction by 1994, and began construction in February 1995 immediately upon receipt of a Continuation Award for Phase 2 under the Sierra-DOE Cooperative agreement. Sierra plans to begin the DOE demonstration of this technology by February, 1997. By year end 1996, Sierra will have invested over $110 million of its own funds in the construction of this facility, and will commit to expend an additional $40 million over a 42 month period to demonstrate the technology, collect and disseminate results. Similarly, the government will have invested in excess of $100 million in the Piñon project through the end of 1996. This project, we believe is a success to date, and will continue to be so. The success of this project, and others in the CCT Program, will depend upon the government meeting the balance of its commitments.

Sierra's success story is hardly unique within the CCT Program. The CCT program has been a truly unique, successful and unprecedented example of industry-government collaboration and partnership on a major scale. The success of the CCT Program, in no small part, has been the result of Congressional direction, and DOE management practices allowing for industry responsibility and accountability for projects direction (as well as funding and risk sharing) and by predictable and stable government funding of its portion of the investment in the projects.

The CCT Program to date has been the subject of significant funding cuts---additional significant reductions in funding have potential to fundamentally affect the integrity of the Program and would seriously jeopardize demonstration of the Piñon Project.

III. ECONOMIC BENEFITS OF THE PIÑON PROJECT AND THE CCT PROGRAM

This project has, and will continue to provide both short and long term economic benefits to the nation. The long range benefits of the CCT Program in general, and the Piñon Project specifically have been articulated well by the DOE (see attachment for a summary of these) and include the demonstration of a new technology enabling the clean, efficient use of the nation's most abundant energy resources. Export opportunities for the technologies demonstrated will emerge, thus providing US jobs and enhancing revenues--the project site has already had visits from firms in Japan and Italy, and other international interest has been expressed.

In addition to these long range benefits, the project provides substantial economic benefits over a shorter time frame--benefits that flow to numerous states throughout the US. For example, in this project, Sierra has utilized Foster Wheeler USA Corporation from New Jersey as its architect-engineer and construction manager. The M.W. Kellogg Company, based in Houston, Texas has been the engineer for the technology based "gasifier island" of the facility. Major equipment totaling in the tens of millions of dollars is being provided by General Electric Corporation out of their New York and South Carolina facilities. Major contracts for equipment have also been awarded to states ranging from Florida to California. During operations, coal will be supplied from Utah on an ongoing basis, and demonstration of eastern coals (state still to be decided) will be conducted. Sorbent will be procured from Calcicat in New York. Other operating supplies and materials will likewise be national in scope. A list of major equipment, supply and subcontracts is attached.

IV. CONCLUSION

Sierra recognizes the budgetary pressures and constraints faced by the federal government and the need for Congress to take appropriate action in considering and implementing plans to reduce federal spending. We ask, however, that as such plans and actions are considered they be tested against the benefits, both short and long term of the programs.

The Piñon project, and other CCT projects offer the very real benefits of jobs, exports, national fuel security and improvements to the environment through cleaner use of coal. We ask that these benefits be considered as the Members consider funding for FY97.

Finally, we urge the Subcommittee to consider the importance of maintaining credibility with industry through meeting its commitments to projects such as Piñon where industry partners have taken good faith actions in reliance on the government meeting its share of cofunding. The government should provide for funding in FY97 to meet its contractual obligations. As described above, Sierra and the government will have each invested substantially over $100 million in permitting, engineering and constructing the facility in preparation for the demonstration of the technology embodied in the Piñon project. We believe that to not fund and complete the demonstration of this technology, and other projects which are proceeding would be a most serious error, resulting in waste of millions of taxpayer dollars.

Recognizing current budget constraints, we recommend against any expansion of the CCT Program, and further recommend that funding from projects which do not proceed be returned to the US Treasury to aid in deficit reduction.

USACA

UNITED STATES ADVANCED CERAMICS ASSOCIATION

Statement of the United States Advanced Ceramics Association to the United States House of Representatives, Committee on Appropriations, Subcommittee on Interior and Related Agencies, regarding United States Department of Energy, Office of Energy Efficiency & Renewable Energy, Fiscal Year 1997 Appropriations.

The United States Advanced Ceramics Association (USACA) appreciates the opportunity to present its views and recommendations to the United States House of Representatives, Committee on Appropriations, Subcommittee on the Interior and Related Agencies, regarding Fiscal Year 1997 (FY97) appropriations for the Department of Energy (DOE), Office of Energy Efficiency & Renewable Energy (EE) and Fossil Energy (FE).

USACA is an organization dedicated to the technological advancement and commercial success of our nation's advanced ceramics industry, representing the collective interests of 20 manufacturers and users of structural and electronic ceramic materials and products. USACA sees continuing government participation as critical to advanced ceramic technology development and future commercialization in industrial applications that will enable substantial energy savings and reduction of atmospheric pollutants. Current DOE EE Office of Transportation Technologies (OTT) and Office of Industrial Technologies (OIT) programs are helping us reach those goals. The following table provides USACA's recommendations for FY97 DOE EE funding for advanced ceramic technology programs.

USACA FY97 DOE Program Recommendations ($ in Millions)

Office of Energy Efficiency	
Transportation Sector	
Materials Technology	
Propulsion System Materials	*$16*
High Temperature Materials Laboratory	*$4.6*
Electric Drive Vehicles Technologies	*$130.4*
Power Unit R&D (Turbine Engine)	*$8*
Industry Sector	
Cogeneration	
Continuous Fiber Ceramic Composites	*$9.1*
Advanced Top Cycles	
• Ceramic Turbine Retrofit	*$6.5*
• Advanced Turbine Systems	*$28.5*
Office of Fossil Energy	
Advanced Turbine System	*$53.3*
High Efficiency Pressurized Fluidized Bed	
• Hot Gas Particulate Filtration	*$5*

OFFICE OF TRANSPORTATION TECHNOLOGIES PROGRAMS

The incorporation of advanced ceramics into the next generation of motor vehicle propulsion systems will mean significant increases in fuel efficiency, significant reduction of harmful emissions, higher performance, reduced maintenance and greater adaptability to alternative fuels. For these reasons, USACA believes advanced ceramics will play a key role in the ultimate success in meeting our national goals of cleaner, more fuel efficient vehicles. Advanced ceramic solutions will help bridge the technology gaps facing cleaner burning spark ignition engines, direct-drive gas turbine engines, and hybrid power plants (involving small gas turbines/battery operated propulsion).

Since 1975, DOE has been sponsoring cost-shared R&D work aimed at structural ceramic component technology for vehicular gas turbine engines. For the past decade, DOE's programs have been two-fold: 1) engine-centered programs focused on evolving and demonstrating structural ceramics in usable engine component form, and 2) base technology programs aimed at basic materials and process development. Advanced ceramic and engine companies have received sponsorship both through the engine programs to develop component capability and through the Oak Ridge National Laboratory (ORNL) sponsored base technology programs.

Currently, USACA supports a number of federal technology development initiatives aimed at improving the energy efficiency, environmental cleanliness and overall competitiveness of the motor vehicle industry. Programs like the DOE EE OTT 1) Propulsion Systems Materials, 2) ORNL High Temperature Materials Laboratory, 3) Light Duty Engine Technologies - Ceramic Turbine Engine Demonstration and Hybrid Vehicle Turbine Engine, and 4) Electric and Hybrid Propulsion Development - Systems Development are helping the US keep pace with foreign competition.

For the ceramic turbine hybrid power plant to be a reality, Propulsion System Materials ceramic technology development programs must proceed with adequate funding. Current Propulsion System Materials activities are an offshoot of the highly successful DOE Ceramic Technology Program which was instrumental in improving ceramic technology to the point where ceramic components can run reliably in conventional automobile engines. As a result of the Ceramic Technology Program ceramic components are currently being inserted into gas turbines and heavy duty diesel engines.

To reach the ultimate goal of large scale commercialization, the cost hurdle must still be overcome. Ceramic components are not now being used by US automobile manufacturers in production applications and will not be used in the future without reductions in cost. In fact, large scale commercial implementation of ceramic components in all applications is being stifled by cost.

Now, more than ever, it is important that these cost-shared programs are funded at the program plan levels. Funding shortfalls will delay important advances, stretch out the timetable for completion and shift the commercialization advantage to our foreign competitors. This activity is critical to the competitiveness of the United States ceramics and motor vehicle industries.

In automotive-sized engines, the ceramic gas turbine engine is an attractive power plant in its direct-drive ("prime-power") form, because of potential increments in fuel economy, alternative fuels usage and smooth operation. Recent emphasis on quantum increases in fuel economy has led automobile companies to accelerate hybrid vehicle R&D. In this setting, the small ceramic gas turbine emerges as the power plant of choice because of its potential for packaging, low emissions, alternate fuels, efficiency and quiet operation. Ceramics provide key payoffs in : 1) turbine inlet temperature, 2) weight and inertia (1/3 of metals), 3), hot wall/low emissions combustors, and 4) potential component cost savings versus metallic superalloy turbine components.

The DOE Heat Engine Development programs have been redirected by DOE and its contractors to support technologies directly necessary for development of the ceramic engines needed for the hybrid programs. Target technology areas are:

- Structural ceramic turbine components (design/process development/fab/test);
- Low emission combustion systems (design/fab/test);
- heat recovery systems (design/ceramic process and material development/fab/ test); and
- Ceramic engine insulation.

The continuation of the OTT Heat Engine Development- Light Duty Engine Development (LDED)-Ceramic Demonstration and Hybrid Turbine activities is critical to the success of the hybrid power train programs. In addition to heat engine development, USACA views DOE's Hybrid Propulsion Systems Development as critical for reaching the nation's goals of cleaner, more fuel efficient vehicles. This program focuses on power train demonstrator vehicles then using state-of-the-art technology, and requires approximately $40 million in government funding for FY97 to reach its targets.

OFFICE OF INDUSTRIAL TECHNOLOGIES AND OFFICE OF FOSSIL ENERGY PROGRAMS

Continuous Fiber Ceramic Composites (CFCCs) are lightweight, tough, corrosion-resistant materials which exhibit strength at high temperatures. CFCCs represent one of the new technologies becoming available that will, if successfully developed and commercialized, bring about landmark change in US energy efficiency, pollution reduction, productivity, and competitiveness. How these new technologies are pursued and the roles that are assumed by industry, government, universities, and national laboratories will determine whether the United States or other nations will benefit from their development. The DOE CFCC program under OIT's Cogeneration has been developed to foster these relationships and ensure a US capability to produce reliable and cost-effective CFCC components for industrial applications.

The market for these types of industrial CFCC products is estimated to be $700 million to $1.4 billion in the short term, developing to a market of over $6.4 billion by the year 2010. It is evident that successful development of CFCCs will increase domestic and global competitiveness from improved component performance. Industrial applications that will result in greater industrial energy efficiency, cleaner environment include:

- Gas Turbines (Power Generation and Propulsion);
- High Pressure Heat Exchangers;
- Waste Incineration;
- Radiant Burners (Steam Generation, Drying and Low-Temp & High-Temp Heating);
- Hot Gas Filters; and
- Diesel Engines (Particulate Traps and Engine Components).

USACA sees the government's leadership as critical to advanced ceramic development and future commercialization in industrial applications that will enable substantial energy savings and result in the reduction of atmospheric pollutants. The DOE CFCC program is helping us reach those goals. The use of CFCCs in industrial applications can result in the following annual benefits by the year 2010:

- Energy savings over 2.16 quadrillion BTUs;
- Energy cost savings of over $8.1 billion; and
- Emission reductions of over 917,000 tons of NOx & 118,000,000 tons of CO_2.

Industry often singles out the DOE CFCC Program as a model program to be emulated in its conception and design and in its involvement of industry, government, universities, and national laboratories. At a time when Congress and government agencies were struggling to redefine the role of national laboratories and their relationship to national industrial competitiveness, the CFCC Program, which aims to establish and maintain US scientific and technological leadership in advanced ceramics and processing, could serve as a blueprint for implementation.

In spite of the tremendous benefits promised by CFCCs, as well as the program's rapid progress, the program continually receives funding at levels well below amounts specified in the program plan requested by this Committee in the original legislation. To begin restoration of this program, USACA recommends Congress provide $9.1 million in funding for Fiscal Year 1996. This amount is needed merely to maintain the Fiscal Year 1994 - 1996 levels of funding.

DOE's Advanced Turbine Systems (ATS) program is also an industry led partnership that is important to the ceramics industry. A keystone of this program is a ceramic demonstration insertion program. The ATS objective is to strengthen the competitive position of the US gas turbine industry through the development of cost competitive, environmentally superior, ultra-high efficiency gas turbine systems for base-load utility and industrial electric power generation markets. The ATS will keep the US turbine manufacturers on the cutting edge of technology for power generation applications, enhancing our national competitiveness, increasing export revenues and creating quality jobs. The goals of the program are to:

- Improve efficiency by 15 percent over today's best gas turbine;
- Lower the cost of producing electricity by 10 percent; and
- Reduce system emissions of nitrogen oxide (NOx), carbon dioxide, carbon monoxide and unburned hydrocarbons.

Management of the program is coordinated between DOE Offices of Energy Efficiency and Fossil Energy, the Environmental Protection Agency, the Department of Defense, the Electric Power Research Institute, the Gas Research Institute and six gas turbine engine manufacturers.

A major element of the ATS is the materials and manufacturing support. This portion of the program addresses the high payoff, high risk materials and manufacturing solutions. One approach to meeting the high operating and low NOx requirements in the ATS program involves the utilization of monolithic ceramics and ceramic matrix composites.

A critical element of the ceramics effort is the ceramic gas turbine retrofit project, entailing the selective replacement of metallic hot section components with ceramic parts. The 5-year cost-shared ceramic retrofit project will develop and demonstrate ceramic and ceramic matrix composite combustor liner, nozzle and blade components. The program includes ceramic component design, manufacture (with emphasis on cost effective manufacturing technology), non-destructive evaluation, testing and a 4,000 hour engine demonstration.

The ATS program is important to the US gas turbine and US ceramics industries. Our foreign competitors have targeted these technologies as key to industrial competitiveness. Because their governments are supporting their research and development efforts, Congress needs to step up to the challenge and help level the playing field for our domestic industry. With this assistance, the United States has the capability to ensure world leadership in this arena.

CONCLUSION

USACA supports the continuation of the DOE EE OTT & OIT and FE cost-shared ceramic and turbine engine programs at the funding levels discussed above. These programs are enabling to high- energy efficiency, low emission/alternative fuel systems. The programs provide new affordable enabling technology options for US industrial competitiveness in global markets. Industry and government have already invested significant capital, and now, as we are approaching the end of the development phase, funding should not be curtailed. For additional information contact Jeffrey S. Abboud, USACA Government Affairs Director, Phone 703-812-8740, Fax 703-812-8743.

House Committee on Appropriations

Subcommittee on Interior and Related Agencies

Hearings on the Energy Program's FY 1997 Budget

March 7, 1996

Mr. Chairman : I am Daniel J. Seery of United Technologies Research Center . I have been employed there for the past 32 years and at present I am serving as the Program Manager of UTRC's Combustion 2000 efforts .

All economic projections for the U. S. GDP growth are dependent on the assumption that there will continue to be an abundant supply of relatively inexpensive energy. Over the next ten years the availability of low cost natural gas should assure that this is the case. Beyond that time frame, all projections require a significant increase in installed capacity of coal-fired powerplants. Since the economic constraints appear inexorable, the remaining questions are -- What kind of coal-fired plant will be built? How efficient will it be? and Will it maintain the low cost of electricity?

In 1992 DOE initiated the Combustion 2000 program to find answers to these questions. The program has two components, one entitled "Engineering Development of Coal-Fired Low-Emission Boiler Systems" (LEBS) for highly advanced electric power plants based on the pulverized coal combustion technique. The second component, "Engineering Development of Coal-Fired High Performance Power Systems" (HIPPS), is based on the potential of achieving high efficiency using an indirectly fired combined cycle. This is a long-range program that will incorporate many of the advances from the LEBS program and will use a gas turbine combined cycle to achieve high efficiency with very low emissions. The goals of the program include:

- Thermal Efficiency ≥ 47% HHV
- NO_x, SO_x and Particulates < 10% of NSPS
- All Solid Wastes Benign
- Decrease in Cost of Electricity

United Technologies Research Center (UTRC) is leading a team of seven subcontractors to develop a HIPPS, including ABB Combustion Engineering, Bechtel, Fluor Daniel, University of Utah, University of North Dakota, PSIT and kWS.

This UTRC-led team has the skills and commitment to develop, test and commercialize the HIPPS concept. The team is composed of world leaders in all of the defined tasks of the HIPPS development: air heater design, materials corrosion, ash management, combustor design, industrial gas turbines, commercial plant design and construction.

The UTRC approach involves using coal combustion to heat clean compressor air by means of a two-stage air heater, then further heating the air by combustion of natural gas to reach optimum turbine inlet temperatures. This cycle is capable of producing electricity at thermal efficiencies of 50% or greater. In this system, more than half of the energy from the coal combustion goes into the more efficient gas turbine. Because the products of coal combustion never enter the gas turbine, the system is able to use advanced gas turbines derived from jet engines and to project long lifetimes.

This innovative program has the potential for producing a great improvement in U.S. electric power production. It offers the potential of producing electricity from coal combustion with thermal efficiencies approaching those of natural gas combustion, while maintaining very low emissions. United

Technologies has invested greatly in the development of jet engines and in the counterpart gas turbines. We see the Combustion 2000 program as an opportunity to make a large improvement in power generating efficiencies by using these advanced aeroderivative machines.

DOE is to be congratulated for its vision and this subcommittee must be thanked for its support of the program.

WRITTEN TESTIMONY OF
MICHAEL D. LINDBERG
COMMISSIONER, PORTLAND, OREGON AND
CHAIR
URBAN CONSORTIUM ENERGY TASK FORCE
SUBMITTED TO THE
SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES
COMMITTEE ON APPROPRIATIONS
UNITED STATES HOUSE OF REPRESENTATIVES

March 21, 1996

This testimony is submitted for the record of the Subcommittee's hearing held on March 7, 1996, at which testimony was received from public witnesses concerning the Department of Energy's (DOE) budget for fiscal year 1997. The Urban Consortium Energy Task Force (UCETF) appreciates this opportunity to report to the Subcommittee regarding its participation in DOE's Municipal Energy Management Program.

The UCETF is made up of local government energy policymakers and administrators from major urban areas around the United States. Currently, 21 jurisdictions are represented on the UCETF: Albuquerque, NM; Austin, TX; Chicago, IL; Columbus, OH; Dade County, FL; Denver, CO; Hennepin County, MN; Houston, TX; Long Beach, CA; Memphis, TN; Montgomery County, MD; Norfolk, VA; Orange County, FL; Philadelphia, PA; Phoenix, AZ; Portland, OR; San Diego, CA; San Francisco, CA; San Jose, CA; Seattle, WA; and Washington, D.C. The UCETF is a subgroup of the Urban Consortium, an organization of the nation's largest cities and counties joined together to identify, develop and deploy innovative approaches and technological solutions to shared urban concerns. The Urban Consortium is a program of Public Technology, Inc. (PTI), which is the non-profit technology organization of the National League of Cities, the National Association of Counties, and the International City/County Management Association.

With funding provided by the Department of Energy, Municipal Energy Management Program, the UCETF annually conducts a program of innovative energy technology application and replication projects. All projects are conducted by local government staff, in furtherance of the UCETF's objective of improving the energy management capabilities of local governments. Participation in the annual work program is open to jurisdictions around the United States. Projects are competitively selected based on merit for two categories of funding: energy project funding (open to jurisdictions with populations greater than 250,000) and technology transfer project funding (open to jurisdictions with populations in excess of 100,000). All programs must demonstrate strong partnerships, which in many cases include cost-sharing, from the private sector and other government agencies. In addition, the annual work program features a variety of technology transfer and solution deployment activities designed to widely disseminate the knowledge gained through the performance of local government energy projects.

CONTINUING ENERGY CONCERNS AT THE LOCAL GOVERNMENT LEVEL

As the level of government closest to the citizens, and with primary responsibilities for providing services to residents and businesses, local governments strive for means to improve service delivery and the quality of urban life. Energy supply and usage, as well as the environmental implications of energy decisions, are a significant concern for local governments.
Meeting local government responsibilities in times of ever shrinking resources demands creative and innovative solutions. Larger urban governments in particular have found means to utilize energy policy and programs as a tool to help reduce the cost of government and stimulate the local economy, thereby producing more revenues that can be used to deliver priority services to local populations.

Even in this time of limited budgetary resources, the federal government must maintain a focus on energy efficiency and renewable energy. Local governments, with crosscutting responsibilities for economic development, environmental protection, and energy management planning, have a key role to play in early technology deployment and evaluation, and as an initial target market for energy and environmental technologies. Urban governments also are well positioned to serve as the "testbeds" that are essential to develop programs, solutions, and markets for energy efficiency technologies and management practices.

As additional authorities and responsibilities are "devolved" from the Federal government to state and local governments, the ability of local governments to respond to new challenges and make prudent policy choices in the energy area for the benefit of local citizens is directly enhanced through the UCETF program. The program responds to needs identified by local governments for specific support in addressing and resolving local energy issues. Through the program's emphasis on partnering, Federal funds through the Municipal Energy Management Program leverage more private sector dollars to help local governments achieve energy goals and respond to the mandates of national energy and environmental policies. DOE resources through the Municipal Energy Management Program leverage local and private sector in-kind and cost-sharing contributions, typically on as much as a 4:1 basis. The return on the Federal government's investment is measured in reduced energy consumption, cost savings and environmental improvement in local areas.

THE UCETF'S 1996 APPLIED ENERGY PROGRAM

Through the current UCETF program, jurisdictions are conducting specific energy technology application or technology transfer projects addressing locally-identified priorities in the following areas:

Transportation - Alternative Vehicle Fuels: Projects address a variety of alternative fuel types, as well as alternatives to conventional transportation, infrastructure requirements and regional issues. **Chicago** is participating in a project to validate the use of hydrogen fuel cell technology in urban bus applications. **Des Moines** and **Polk County, Iowa,** are participants in the development of a commercial refueling infrastructure for fleet vehicles capable of operating on ethanol (E85). Other jurisdictions participating in this project include **Indianapolis** and **Hennepin County, Minnesota**. In **Atlanta**, where a major effort to showcase the use of alternative fuel vehicles is planned during the upcoming Summer Olympics, a UCETF-funded project will support analysis of the economics and efficiency of a broad selection of AFVs when used in high-volume, high traffic applications. **Washington, D.C.**, is developing an alternative fuel vehicle training curriculum for public schools to provide qualified service technicians for AFVs. **Santa Barbara, California** is addressing regulatory barriers and incentives to the use of electric vehicles.

Utility and Industrial/Commercial & Government Energy Efficiency: This priority area focuses both on cutting energy usage in government and other local facilities and, increasingly, on the changing relationships between local government and energy utilities, in part in response to the trends toward restructuring in the electricity industry. Many projects in this area have a strong technical focus. In the area of facility energy efficiency, **Pittsburgh, PA**, is validating the savings resulting from the implementation of a two-step program to reduce peak electricity demand. **Montgomery County, MD**, is working to encourage deployment of efficient technologies by identifying proper control and coordination of advanced commercial variable air volume heating, ventilation and air conditioning systems. **San Francisco, CA**, is evaluating alternative project delivery and management systems for implementing large scale, multi-year and multi-facility energy efficiency retrofit projects. **Philadelphia, PA**, is analyzing and identifying applications for optimal use of new, energy efficient induction lighting technology in public buildings. In the area of utility restructuring, **Barnstable County, MA**, is identifying options for local governments to issue competitive franchises. **Portland, OR**, is investigating the opportunities for performance based franchise agreements and aggregated energy purchases.

Sustainable Urban Energy Management: At the implementation level, planning for a sustainable future means linking local energy policies and programs to broader community goals affecting economic, social and environmental priorities. In the current program, **Denver, CO** is preparing an information resource guide which will become part of the zoning, environmental regulations and incentive programs for the redevelopment of Stapleton Airport. **Hennepin County, MN**, is testing potential applications for solar power and light emitting diode lamps in red flashing traffic lights. **Houston, TX**, is evaluating methods to obtain refrigerant inventories, schedule HVAC equipment replacement, maintain HVAC equipment, and manage refrigerants in order to formulate a workable strategic refrigerant recycling management plan and use the savings to minimize refrigerant costs. **Memphis, TN**, is developing a partnership between several government agencies and local contractors to encourage HVAC, mechanical and electrical contractors to provide energy efficiency technology and services to commercial customers. **Tucson, AZ**, is building two straw bale buildings to demonstrate a building technology that uses an annually renewable, readily obtainable agricultural waste product to build an affordable, super-insulated wall system.

Technology Transfer Projects: Seven projects in this area focus on expanding knowledge generated through the UCETF program, refining and replicating previously conducted UCETF-supported work in additional jurisdictions, and developing new approaches. **Lansing, MI**, is convening an Urban Energy Empowerment Consortium to integrate energy and water efficiency into redevelopment and revitalization programs for the City. **Phoenix, AZ**, is identifying for replication by other jurisdictions the process used by the City in establishing an energy conservation savings reinvestment plan. **Cedar Rapids, IA**, is creating an energy efficiency demonstration, evaluation and training module to provide technology assessment and training for city and private sector facilities personnel from the region. **Portland, OR**, sponsored an alternative fuel vehicle "sideshow" to the annual Portland Auto Show held in February, with the purpose of attracting vehicles to the Pacific Northwest area for demonstration and offering local fleet managers the opportunity to familiarize themselves with technologies likely to become available in the next several years. **San Francisco, CA**, is working to transfer aspects of the sustainable municipal buildings program developed by **Austin, TX**, to San Francisco, with the result being plans and specifications to guide City architects and engineers in implementing sustainable building practices. **Cabo Rojo/Mayaguez, PR**, is determining the feasibility of solar-assisted air conditioning and dehumidification systems in tropical climates. **Seattle, WA**, is working to overcome barriers to telecommuting by validating the effectiveness of telecommuting as a management tool.

In addition to these specific technology transfer projects, the UCETF program features peer to peer exchange and dialogue on a variety of issues, and is concentrating in particular on effectively documenting products available for transfer from prior year programs. Specific efforts are underway in several areas to conduct direct transfer activities to widely share the benefits of federally-supported energy technology development and application programs.

CONCLUSION

Local governments can and should be a component of the national effort to position and maintain the United States as the world's leader in developing, applying and exporting sustainable, environmentally benign and economically competitive energy technologies. Local governments have needs to implement energy policies that support local economic development, including jobs growth and retention and particularly focusing on the small business sector; to identify ways that energy technologies can be applied to aid in addressing community issues; to foster information sharing and encourage training in new energy technologies; and to understand the impacts and opportunities likely to result for local governments from a more competitive electricity industry. The UCETF's 1996 program addresses these and other needs as identified by local governments, and provides an important mechanism to assure that the resources and capabilities of local governments are applied in the effort to enhance our national energy and environmental security.

WRI WESTERN RESEARCH INSTITUTE
The University of Wyoming Research Corporation

March 19, 1996

The Honorable Ralph Regula
Chairman
Subcommittee on Interior and Related Agencies
Committee on Appropriations
U.S. House of Representatives
Washington, D.C. 20515

Dear Mr. Chairman:

On behalf of the Western Research Institute (WRI), I request that the following statement be submitted as part of the record of proceedings for the subcommittee's consideration of the Department of Energy's Fiscal Year 1997 fossil energy research and development budget request. At the outset, WRI strongly requests that you support the cooperative agreement program that provides both basic and jointly sponsored research funding assistance to WRI. As we submit this statement, the fiscal year 1996 appropriations remain to be finalized. However, we hope that the conference report funding level will be enacted into law, providing at least $3,000,000 for WRI programs. This agreement represents a substantial reduction, but we recognize the severe constraints Congress was under as it developed the 1996 energy research budget. As you begin the 1997 appropriations process, we urge you to support the cooperative research program at a total level of $11 million and to the maximum extent possible avoid further budgetary erosion of the WRI cooperative agreement.

Although we have not had the benefit of reviewing the Administration's fiscal year 1997 budget request, we take this opportunity to urge you to support a fossil energy research and development budget that has as a central component the cooperative research program, which relies on cost-shared and noncost-shared research assistance. Since its inception several years ago, this program has proven to be an unqualified success.

WRI employs 90 people. Our scientists are involved with energy and environmentally related research and development issues. Over the past several years, we have also focused on serving as an incubator of new technologies that address the needs of the energy industry.

At a time of diminishing federal resources for research and development, the cooperative agreement program has leveraged available federal resources with industry partnerships to maintain progress in developing new fossil energy-related technologies and processes. The availability of this program has also permitted our basic, noncost-shared research program to continue in areas that carry too high a risk for industry, but hold the potential of attracting partners once additional research findings have been evaluated.

The success of this program can be recognized through our goals. Specifically, WRI uses the cooperative research program to:

- Increase the production of U.S. energy resources including petroleum, coal, natural gas and renewable energy resources.
- Ensure timely technology transfer.
- Decrease the environmental consequences associated with energy exploration, recovery and utilization.
- Respond to energy sector's research needs to enhance energy recovery, production and utilization activities.
- Conduct high risk fundamental research that holds the potential for future cost-shared research.
- Address the country's dependence upon foreign energy supplies and provide energy production alternatives to relieve unforeseen disruptions to our energy supplies.

WRI uses the cooperative research program by melding the base and Jointly Sponsored Research Program activities. Recognizing that research must meet industry needs, as well as addressing issues that remain to be fully developed, the base program explores innovative concepts that ultimately promise to attract industrial participation. This approach is vital to the long-term relevance of our nation's fossil energy research priorities. Research for research sake is a luxury that we cannot afford. At the same time, the nation's energy security is grounded in advancing technologies that enhance recovery, production, and utilization. The public consensus on the importance of being good stewards of our natural resources while producing energy supplies requires the development of technologies that either mitigate adverse consequences associated with production or that can be used to minimize, reuse or recycle waste by-products. This approach guarantees that our initiatives meet two objectives. First, research is focused in areas that can quickly evolve into the development and demonstration phase that will lead to full scale commercialization. Second, that research is directly tied to industry priorities. This ensures that when research priorities evolve into the technology development and demonstration phase a cost-sharing partner will be there to follow through on the commercialization requirements.

Since the inception of this program, WRI's cooperative research program has been a success. All available funding has been obligated with more than eighteen projects underway. Each project has at least fifty percent cost-sharing with some projects supported by a sixty percent industry cost share. This is above the congressional mandate of fifty percent. WRI believes that given current level of industry interest and demand, we could easily match at least another $5 million in jointly sponsored research projects if Congress were to appropriate additional resources to this program. In fact, since 1993 when

WRI entered into a cooperative agreement with DOE, we have matched $8.811 million of DOE assistance with $12.291 million in industrial funding.

It is important to highlight that this program is not a one way street. It provides several benefits to the government. First, it requires industry to share the financial risk of research and development that is of direct benefit to the industry. Second, with the oversight of DOE staff, WRI's management of the program is able to stretch limited fossil energy research funding beyond traditional purchasing capability. While this program will never substitute for a comprehensive fossil energy research program, it provides critical seed money to new technologies that would otherwise be precluded from an opportunity to be developed and moved toward commercialization. Third, it demonstrates that meaningful cost-sharing is a realistic approach to promote technology development. And fourth, it helps to maintain our competitiveness in the international fossil energy sector.

In Fiscal Year 1996, WRI intends to move aggressively to transfer technology into the commercial sector. At this writing we have seven technologies that have gone through the incubation and research and development phases of the program and are being readied for full scale development. One technology has entered the marketplace and is, commercially speaking, a success. Following on these successes, we hope to start a new cycle of projects that will address the energy and environmental needs of industry and meet our rigorous technical, scientific and commercial value criteria. However, the recent history of the cooperative research program has been one of significantly declining budgets even as other programs within the Office of Fossil Energy have held steady with the rate of inflation.

In the event that Congress is unable to foster increased industry partnerships through increased support, WRI will be forced to perform project triage. Since many of our projects are multi year efforts, simply stated, we will continue to support our ongoing projects, but will be unable to accept a number of worthy projects that could enhance our nation's energy recovery, production and environmental priorities.

To this end, we strongly encourage the subcommittee to reverse course and provide increased levels of funding of the cooperative research program that will support both basic and jointly sponsored research programs under the Cooperative Research Program account. We believe that increased program funding should be viewed as an effort to support a program that has borne a disproportionate share of the deficit reduction efforts over the past several years but that has nonetheless produced important results.

Our request for this program is based on proven results. Our accomplishments are numerous and we are especially proud of our ability to meet the congressional mandate to transfer several technologies to the demonstration phase that will in turn lead to commercialization of the technologies. These activities will mean jobs creation and enhanced competitiveness for energy recovery, production and utilization companies as well as environmentally related mitigation technologies and processes. Among the successes we have delivered through this program and which we expect to become commercial are:

- subsurface cleanup of hydrocarbon contaminants,
- surface cleanup of contaminated waters, and
- enhanced recovery of oil using downhole steam generators.

Additionally, we are extremely proud to have successfully moved a remote sensing technology for contaminant monitoring into the marketplace. This success means that industry will have real time information on the nature of environmental contaminants. This success also establishes the credibility and importance of the Cooperative Research Program.

We, again, strongly urge the subcommittee to support this important program at increased funding levels and specifically provide the WRI cooperative agreement with $5.5 million to support both the basic and jointly sponsored research programs at WRI.

Sincerely yours,

J Speight

Dr. James G. Speight
Chief Executive Officer
Western Research Institute

THURSDAY, APRIL 25, 1996.

DEPARTMENT OF ENERGY

WITNESS

HON. HAZEL R. O'LEARY, SECRETARY OF ENERGY, DEPARTMENT OF ENERGY

Mr. REGULA [presiding]. Okay, we'll call the committee to order and get started here. We're happy to welcome the Secretary of Energy, Ms. O'Leary.

Before we start, I'd like to set the stage. What is the energy situation in the world and in the United States as you look at the next twelve months. I guess what prompts my question is that I noticed the price of gasoline creeping up rather significantly. Is there a message in all of that?

INCREASE IN GASOLINE PRICES

Secretary O'LEARY. Well, I think that there are always messages, and the message that I read this week and this month, just after the sale of the government's portion of SPR to pay for our retrofits in the Strategic Petroleum Reserve, is that the market has been moving up all through this season in terms of price. Normally one would expect this. It's the rebound preparing for the early spring requirements for motor gasoline, and it always comes after harsh winters.

What we see in this very dramatic price spike—and this certainly was true with respect to spot prices all this week—is a further reduction in what would be traditional stocks at this time of year actually caused many people keeping their stocks low because they thought that the negotiation between the UN and Iraq to allow the sale of oil for food and medicine would cause the price of petroleum to be reduced because of that influx of new supplies into the marketplace.

One point of fact that we all ought to know now is that the negotiation between the UN and Iraq blew up two days ago, and there will not be new negotiations for another thirty days or more.

That means that most of those who bet on very low stockpiles now have to make a decision whether to go back into the market. The interesting thing is that over the past three days, when there were indicators that the Iraqis would walk away from the table at the UN, we've seen the price dissipate, go down just a little in the last two days. This is true for futures as well.

Futures for West Texas intermediate crude were at about $22 and some change per barrel two days ago. I think that West Texas is down to $21 per barrel now simply because—it's as though we've done "just in time" with our stocks of petroleum, and it is clear now that one cannot bet on lower prices because there are no supplies there.

What this points out to me, and to those like you Mr. Chairman, who have been in the business so long is how one occasion in terms of supply disruption can so volatilily impact the market place.

Mr. REGULA. So what you're saying is that the market is fragile.

Secretary O'LEARY. The market is extremely fragile and will continue to be. If we look out to the next five or six years with a growing population and energy demands, mostly outside of the United States, you can see that that continued pressure on oil supplies and oil prices will be a very relevant fact of our lives.

Mr. REGULA. What is the spot market? Around $21?

Secretary O'LEARY. I should have checked this morning, but I think that the spot is around $19 or $20 per barrel for West Texas. But it was higher by almost $0.81 two days ago.

The point I wanted to make is that these conclusions that you and I come to are shared by many others including Jim Schlesinger—we don't have to mention almost any other Secretary of Energy who has been watching for the long term our increased dependence on supply of oil from the Middle East.

Alan Greenspan, I think, in his last testimony before the Congress made the same remarks relevant to balance of payment.

Mr. REGULA. You're saying that we're going to be more reliant on imports.

Secretary O'LEARY. More reliant and, therefore, more vulnerable with respect to its economic impact, and I think back—and I always like to use this as a marker as well—to the early 1980's when we were just rebounding from the price shocks of the first supplier interruptions and then the war in the Middle East. I remember foolishly having to buy a house in Georgetown. I can remember that my early mortgage rate was approaching 20 percent. That was a result that we all understand now of energy price shocks and its rebound into the U.S. economy. The loss of trillions of dollars.

Mr. REGULA. I was here in the late 1970's when we went through the energy crisis and we met late nights trying to figure out what to do about lines at gas pumps. Americans aren't very tolerant of shortages.

Well I'm going to suspend for a couple of minutes while I go over and vote.

Okay, we'll get back here.

Madam Secretary, your full statement will be made a part of the record, and if you'll summarize for the members, then we'll go from there.

OPENING REMARKS

Secretary O'LEARY. I'd be happy to summarize, Mr. Chairman.

You opened up the records with some inquiries regarding what's happening with energy prices. We all concluded that the market is volatile, and we were beginning to conclude, I believe, that the economic impact of volatile energy prices can and, in my experience, has shown a rebound in our economy to make a very drastic impact.

You had also commented that the American public does not tolerate energy lines very well. It's unfortunate that they do not see nor understand the impact of dramatically rising energy costs and understand that those are even more difficult to tolerate over the long term.

I need to compliment this committee, because as I look back to the early days of the first oil crises, I'm understanding that especially this subcommittee provided the wherewithal to permit us to get at how we relieve some of those impacts.

Mr. REGULA. I would say that then we were under the chairmanship of Mr. Yates.

Mr. YATES. That's true. [Laughter.]

Secretary O'LEARY. And so we have always been focused on ways to reduce the growing dependence on Persian Gulf oil though we have not always agreed upon the means.

Alas and alack, however, we see that with growing population and energy requirements that our needs have not been reduced as dramatically as we'd like. But I want to come to that discussion because I also want to focus on the fact that, through the groundwork laid by this committee, the Department of Energy and other agencies who have responsibilities in this area have done an extraordinary job, I believe, especially in the long run and in the early years to get at this.

I would start with energy improvements in terms of energy consumption and point out to you that since the early 1970's the Gross Domestic Product has grown by some 75 percent while at the same time our energy consumption has grown by almost 20 percent.

We worried about and discussed whether we could intervene and disrupt the lock step between the Gross Domestic Product and energy consumption. In point of fact, we have, and we've done it really through the use of technologies in which this committee has invested so deeply.

I need to point out to you that I don't have to tell you this, but the General Accounting Office has told you after going in and taking a very hard look at whether our energy efficiency programs have paid off. In examining only two programs, they see a payoff of $8 billion. In point of fact, you should know that the U.S. taxpayer has spent $7 billion in these programs. And we've only done the scrub on two of them. So you see that the potential is there both in terms of energy savings, which is the mark that the General Accounting Office used, but more importantly, in backing off the use of petroleum, the creation of jobs, and also improved health benefits. The health benefits have been improved and therefore reducing health risks will permit us to quantify much, much greater savings.

I'd like to move very quickly from that area and point out to you another area where, if you would believe critics of, it turns out, this committee and the Department of Energy, they say we've given no return to the U.S. taxpayer. In the Clean Coal Program, now a decade old, the American taxpayer spent about $2.4 billion. The size of the entire program is, of course, larger because the industry has paid its fair share and so have some State and local governments.

But the question we ought to be asking is, what has been returned to the U.S. economy as a result of that investment by the U.S. taxpayer, and again we can quantify it, and have others believe it. Already in a program which is relatively immature in terms of deploying the technology in which we have invested, we can count $9 billion in sales already granted. But if you want to look further——

Mr. REGULA. Is that sales of clean coal technology?

SALE OF CLEAN COAL TECHNOLOGY

Secretary O'LEARY. That's correct, sir. With a burgeoning market, in Asia as well as in South America, or Latin America and Central America, you can understand what the impact is.

We have people now who were with me when I was at Wabash—an integrated gasified clean coal plant—in Indiana, the South Koreans, the Chinese, the Indonesians were all there wanting to buy this technology. So the projection for sales available, when you look at a place like China or you look to Indonesia, where they have no recourse but to use coal, that is clean coal.

The benefit to the United States is even much greater because we're not talking about retrofit of old plants anymore. We have designed coal plants of our own that will give us clean coal technology at the same cost of any traditional power plant. That's what the investment has given us.

Mr. REGULA. Is that using low sulphur—or high sulphur coal, too?

Secretary O'LEARY. That is generally using some of the better sulphur coal. We have other technologies for the clean up of high sulphur coal. I think that the last time I appeared before this committee, I talked about the clean coal, the scrubbing and the drying product of Rosebud Synfuel plant, a power plant owned by Montana Power and NSP, which is now using higher sulphur, and cleaning it up and bringing coal to market and producing kilowatt hours at the busbar which is competitive.

If you are looking for results, these investments in technologies—I choose not to call them programs—these investments in technology have paid off, and we need to talk about that. We need to continually focus on impact in terms of competitiveness as well as job creation. We need also to talk about its impact on the environment. If we don't like to simply stop with the environment, we then need to talk about the fact that we've greatly improved health and therefore reduced health costs. These have been outstanding programs.

I could go through the same exercise on the demand-side management—in the demand-side management area with respect to lighting and buildings. I could talk about refrigeration. But I am sure that if I would shut up, that on questions and answers I'll get to talk about what you want to talk about.

Hello, Mr. Nethercutt.

Mr. NETHERCUTT. Hello.

Secretary O'LEARY. How are you this morning? It's nice to see you, sir.

Mr. REGULA. Are you finished?

Secretary O'LEARY. Yes, I thought I would be quiet and let the questions and answers get it done.

[The statement of Secretary O'Leary follows:]

Statement of Hazel R. O'Leary
Secretary
U.S. Department of Energy
House Appropriations Committee
Subcommittee on the Interior and Related Agencies

Mr. Chairman, and Members of the Committee, I appreciate this opportunity to present the Administration's Fiscal Year 1997 budget request for the programs within the jurisdiction of this subcommittee. When I appeared before you last year, we discussed the Department's Strategic Alignment Initiative and other management reforms moving into place at that time. Now that a year has gone by, I would like to revisit this and share the real progress we have made to improve the operation of the Department of Energy.

Shortly after my arrival at the Department, the Congress appropriated a FY 1993 budget totaling $19.3 billion. Today, we are requesting $3 billion less with a total FY 1997 request of $16.3 billion. These savings are real. This is not a projection. This is money in the bank and a hefty down payment on the Administration's commitment to balance the budget in seven years.

Equally strong to our commitment to save taxpayer dollars is our sense of obligation to continue investments that ensure the nation's security, competitiveness, and improved environmental quality for generations to come. This budget balances both. Three years of management reform investments enable us to deliver more program at less cost. At the same time, we are taking some of these savings to bolster our request for investments that provide for our nation's energy future.

Our investments are delivering results that matter to the American people -- from increased domestic oil production made possible through new technologies, to research breakthroughs that provide consumers with alternatives to petroleum intensive products. Activities such as the Federal Energy Management Program which helps the entire government to reduce its energy bills, and NICE^3 which leverages dollars for industrial efficiency projects, and have payoffs far in excess of the Department's initial investment.

Aggressive Management Reforms

The remarkable reversal in the Department's spending path resulted from an aggressive agenda of reforms we have pursued since 1993. Management initiatives in place throughout the Department are reducing our overall cost of doing business. In January 1993, the Department of Energy employed 148,000 contractors at its facilities and laboratories in 35 states. Today our contractor workforce numbers 117,000 -- a 20 percent reduction. Using workforce management tools such as buyouts, attrition, outplacement, managed hiring and involuntary separations, we have eliminated 1,300 federal staff positions toward our FY 1996 target reduction of 1,380. Our goal is a 27 percent reduction over five years.

In May 1995, we announced a comprehensive Strategic Alignment Initiative (SAI) that yields an estimated $1.7 billion in savings over five years through reductions in the Department's federal workforce, elimination of organizational redundancies, and major cuts in unnecessary overhead costs. Today, the Department is meeting or exceeding all of the major cost-saving targets that we set for ourselves last spring as part of the Strategic Alignment Initiative. We forecast FY 1996 savings of approximately $277 million -- $55 million more than originally targeted within the following categories:

- $120 million decrease to support service contracts;
- $41 million decrease in information resource management;
- $40 million reduction to travel;
- $55 million reduction for staff savings;
- $15 million from sold cold war assets; and
- $6 million saved in National Environmental Protection Act activities.

Other major initiatives will also change the way we do business and save money for the American taxpayers. Contract reform and the contractor salary freeze have already saved approximately $1.1 billion, with $3-5 billion projected over the next 5 years. Through the recommendations of the Galvin Task Force review of the national laboratories and the Yergin Task Force review of our energy research and development portfolio, we expect over $2 billion in additional savings through improved management practices.

Managing for Results

We are taking recommendations and turning them into actions. Our budget request for FY 1997 reflects the first year of substantial savings from these management improvements. We are making changes to deliver more for less.

We are managing our energy resource programs from a more corporate perspective. The Department now has an energy resource cluster that is working to eliminate redundancies and pursue innovative approaches to maximize the effectiveness of program resources.

The Fossil Energy program estimates that management costs in the FY 1997 research and development program will be nearly 22 percent less than in FY 1995. We will save at least $125 million over the next five years in the Fossil Energy program by streamlining our headquarters organization and by consolidating management and administrative functions at our three R&D field centers. By the end of FY 1996, instead of three separate field offices each with their own administrative staff, we will have a single, integrated field office sharing administrative resources at three locations. Our plans to privatize the National Institute for Petroleum and Energy Research in Bartlesville, OK, beginning this summer, are projected to save the Government $25-35 million.

Also a part of SAI, the energy efficiency program closed, on March 31, 1996, four of its regional support offices, located in New York, San Francisco, Dallas, and Kansas City. This action is expected to generate $58 million in savings. In addition, the program anticipates a 50% reduction in support service contract costs, from $26 million to $13 million in FY 1996. The program has also submitted to this committee a reprogramming announcement regarding a proposed reorganization. Under this new plan, the programs formerly within the Office of Technical and Financial Assistance will be spread throughout the organization. The grant programs will be consolidated in accordance with the FY 1996 Congressional direction, and incorporated with the Buildings sector programs. The Federal Energy Management Program is proposed to operate as a separate program office.

The management reforms underway within the Department represent a major change of direction for this institution. We are managing out unnecessary costs and improving performance. The General Accounting Office has described our efforts as "one of the most sweeping strategic realignments in DOE's history."

Delivering Sustainable Energy

The purpose of the management reforms is to maximize the amount of taxpayer dollar going to investments in energy that improve the nation's security, environment, and prosperity. Our nation's energy policy is to help ensure that energy supply and utilization meets our short and long-term national security, environmental, and economic goals, which are:

- Keep America secure by reducing our dependence on insecure sources of foreign oil
- Improve the environment by preventing pollution
- Maximize the productivity with which we produce and consume energy

Keeping America's Economy Secure

Consider the first goal. In the 1970s and 1980s, vulnerability to oil price shocks led to cumulative losses estimated at trillions of dollars. The Nation's energy picture, however, has changed considerably since the 1970s's due, in part, to the foresighted investments this subcommittee has made to ensure America's energy security. As a result:

- Today's deregulated oil supply system is more flexible and diversified and includes shock absorbers like the Strategic Petroleum Reserve that didn't exist at that time.

- Natural gas is gaining a growing share in the energy mix. Significant advances in combined-cycle generation are opening new markets for gas. Gas consumption is rising more rapidly than overall energy demand to meet global needs.

- Technological innovation has driven down costs and brought new efficiencies to the entire spectrum of energy supply.

- Energy efficiency has also had a dramatic impact. Today, the United States uses only 20 percent more energy than in 1973 even though GDP has increased by 75 percent. Had we not made the substantial gains in energy efficiency, our oil consumption might be more than 17 million barrels per day of oil.

That is good—but not good enough, particularly considering that the last war this nation fought was in the Persian Gulf just five years ago. While predictions are always risky, especially where oil is concerned, fundamental trends in oil demand and supply underlie a growing consensus among energy experts that energy security concerns are reemerging. It is now generally agreed among forecasters that global demand, mainly from developing nations, will grow by 22-34 percent over the next 15 years. According to the DOE's independent Energy Information Administration (EIA), the world will need another 20 million barrels of oil a day by the year 2010, up from 69 million barrels of oil a day in 1995. The International Energy Agency projects even higher growth in demand, following the inexorable tide of population growth, urbanization, and industrialization.

The Persian Gulf, with two-thirds of the world's oil reserves, is projected to supply the vast majority of that increased demand, more than three fourths according to the EIA. Within ten years, the Gulf's share of the world export market may surpass its highest level to date, 67 percent, was attained in 1974. The EIA predicts that in the face of increased demand, oil prices will rise slowly to $24 a barrel in 2010. If, instead, they remain low, the Gulf's share of the world export market may rise to 75 percent in 2010.

The world's growing dependence on Persian Gulf oil has several potentially serious implications for the nation's economic and national security. First, this same forecast holds that the United States will be importing nearly 60 percent of its oil within a decade (and, if oil prices turn out to be lower, our dependence on imports will be greater). Our trade deficit in oil could double to $100 billion a year by that time.

To the extent that the Gulf's recapture of the dominant share of the global oil market makes price hikes more likely, the U.S. economy, indeed the world economy, will be at risk. Since the 1950s there have been six oil supply disruptions of two million barrels a day or more, an average of one every five to ten years, all originating in the Middle East. Although oil imports as a percent of gross domestic product have decreased significantly in the past decade, our economic vulnerability to rapid increases in the price of oil persists. Since 1970, sharp increases in the price of oil have always been followed by U.S. economic recessions.

Second, if current energy forecasts prove out, the Persian Gulf nations' oil revenues may almost triple from $88 billion a year today to nearly $247 billion a year in 2010—a huge geopolitical power shift of great concern. During the first oil crisis in the early 1970s, the countries that were competing with us for oil were our NATO allies, but during the next oil crisis, a new important complication will arise: the competition for oil will increasingly come from the rapidly growing countries of Asia. Indeed, in the early 1970s, East Asia consumed well under half of the oil used by the United States; by the time of the next crisis, however, East Asian nations will probably be consuming more oil than we do. These nations are already establishing stronger diplomatic ties with the Persian Gulf.

Thus, the threat to our security remains a serious one. Last March, Senate Majority Leader Robert Dole said, "The second inescapable reality of the post-20th century world is that the security of the world's oil and gas supplies will remain a vital national interest of the United States and of the other industrial powers." In July testimony before Congress, Federal Reserve Chairman Alan Greenspan, not known for being an alarmist, raised concerns that the rising trade deficit in oil "tends to create questions about the security of our oil resources."

The Department is at the center of federal efforts to enhance U.S. energy security, including essential programs in Energy Efficiency and Fossil Energy. The centerpiece for Energy Efficiency is the Partnership for a New Generation of Vehicles. In Energy Efficiency, examples include development of transportation technologies to achieves the goal of tripling automobile fuel economy by 2004 and lower emissions, and a related new methanol reformer that could bring fuel cell cars one step closer to the market.

The Partnership for a New Generation of Vehicles by the Department of Energy, other federal agencies, the national laboratories, and the big three automakers is working on advanced engine and material technology to design and construct by 2004 a prototype clean car that has three times the fuel efficiency of existing cars and very low emissions, but comparable or improved performance, safety, and cost. The Department is also investing in the development of cars and trucks that can run on alternative fuels, such as electricity, liquid biofuels, and natural gas as well as the infrastructure needed to make use of those fuels more viable.

On the Fossil Energy side, we are working to lower the cost of finding and extracting oil and gas. Examples include "high tech" exploration, drilling and production tools that can extract gas from difficult formations, such as the low-permeability deposits in the West, and better technologies to explore for scarce domestic oil supplies.

Improving the Environment

The environmental goal is an essential one for the Department of Energy because pollution and energy use are inextricably linked. Most urban air quality problems in this nation and around the world are linked to the production and consumption of energy. Some 54 million Americans live in areas that regularly violate air quality standards. The American Lung Association estimates that Americans spend $50 billion each year on health care needs that result directly from air pollution alone. As much as 80 percent of urban air pollution is caused by transportation energy use. Energy efficient transportation and alternative fuel technologies can substantially cut these emissions—improving local environmental quality, and cutting health care costs as well. Energy efficient technologies in homes, offices, and industry reduce emissions from power plants, further improving local and regional air quality and further cutting health care costs.

Reducing emissions from traditional energy sources is essential since they will be providing the vast majority of our power for the foreseeable future. Over the next decade, the Department will develop advanced fossil fuel technologies that exceed new emission requirements (up to 10 times cleaner) with lower electricity costs than feasible with today's technology. These technologies include much cleaner natural gas technologies such as ultra high efficiency gas turbines and fuel cells.

The half-dozen most energy-intensive industries in the country are responsible for the vast majority of the industrial pollution: steel, aluminum, petroleum refining, chemicals, pulp and paper products, glass, and metal casting. These industries account for about 80 percent of the energy consumed in U.S. manufacturing and more than 90 percent of U.S. manufacturing hazardous waste. They represent the biggest opportunities to increase energy and resource efficiency while reducing pollution. That's why the DOE has been forming "Industries of the Future" partnerships with these industries to develop technology roadmaps and new technologies aimed at dramatically curbing the energy use and the pollution posed by the most energy- and materials-intensive industries.

Funding for pollution prevention is the best opportunity for the nation to avoid the need for costly environmental regulations. The government has a role in advancing pollution prevention for several reasons. First, pollution prevention technologies often benefit many companies only a little bit, so no one company has the incentive to spend the money by itself. Second, prevention has so many public benefits not fully captured in the marketplace: reduced resource consumption, improved environment, reduced energy consumption, and increased jobs and competitiveness. Thus the private sector will inevitably under invest in R&D on clean technologies. Third, while it is possible that the 120 governments represented in the Intergovernmental Panel on Climate Change were wrong in December when they concluded, "the balance of evidence ... suggests a discernible human influence on global climate," it seems imprudent to base federal energy R&D policy on that hope. Fortunately, the same investments that prevent industrial pollution and urban air pollution while lowering the nation's energy bills also minimize greenhouse gas emissions.

Raising Energy Productivity

An essential element in maintaining the economic security of Americans is to improve the productivity with which we use energy. Energy R&D has helped keep energy prices affordable, and can do so in the future. On the supply side, for instance, Sandia National Laboratory solved a drill-bit problem that industry scientists had tried for two decades to solve. The resulting polycrystalline diamond drill bit can increase drilling speed and lower the cost of drilling by as much as $1 million per well. Today it has annual sales in excess of $200 million and has delivered a total national benefit in excess of $1 billion.

On the demand side, we have had equally remarkable successes. For instance, four building technologies—fluorescent lamp electronic ballasts, advanced energy-efficient windows, analytical software for energy-efficient building design, and a high-efficiency refrigerator/freezer compressor—developed with DOE support of about twenty-five million dollars have already saved consumers and businesses a net of more than $5 billion in lower energy bills.

Keeping the nation's energy prices stable requires a constant stream of new, more efficient supply and demand technologies; otherwise the inexorable tide of increased energy demand at home and around the world could lead to higher energy prices.

Continued federal funding in advanced gas turbine technology, fuel cells, and other high-efficiency fossil fuel combustion technology is essential for keeping energy costs low, as is continued funding for energy-efficient transportation, building, and industrial technologies.

Moreover, global demand for power technology could create a $1 trillion export market by 2015. Capturing only 20 percent of this market would bring in revenues of $200 billion and support more than 3 million job-years in the domestic power equipment industry alone. And the global market potential for clean transportation, building, and industrial technologies in the next century is likely to exceed $400 billion a year, another potentially huge source of jobs.

Other governments recognize the potential. The governments of Japan and Germany, for example, have increased cooperative efforts with their private companies to develop technologies that can overtake the United States. Japan, in spite of a flat economy, has nearly tripled its funding over the past five years for advanced coal combustion technology -- the technology most in demand in the world export market. Japan reportedly spends nearly three times more on fuel cell research than does the United States.

Unfortunately, since the mid-1980s, real private sector investment in energy R&D has dropped 35 percent. U.S. companies have been shifting away from basic and applied research toward a focus on incremental product and process improvement. Increased international competition and downsizing of corporate laboratories have shortened the time horizon of most private sector R&D. Low energy prices have further undercut private sector investment in new energy technologies.

This places an even greater urgency on the need to more effectively target federal R&D dollars to ensure a sufficient level of long-term innovation in energy technologies. The strategy of this Administration has been to work as a partner with industry to further our nation's energy goals. Since 1993, we have changed our approach to doing business. We listen more and incorporate what our stakeholders have to say. We're reaching out to coordinate our R&D efforts, target our dollars more effectively, and increase cost-sharing. We have established collaboratives that seize the natural forces of the marketplace to deploy energy technologies more successfully. The benefits from this new approach will pay off for years to come -- not just in America's increased energy security, but also in a cleaner environment, increased economic competitiveness, and a foot-hold on the burgeoning global market for energy technologies.

Energy Efficiency

One of our best responses to these challenges is investment in energy efficiency, reducing the amount of energy used to produce the goods and services. This investment not only strengthens the Nation's energy security, improves competitiveness, and enhances environmental quality, it delivers profits for business and protects family budgets. Energy efficiency helps make energy services affordable for those struggling to make ends meet, and it helps clean the air we breathe. This Administration is committed to an aggressive energy efficiency investment strategy as evidenced by the Department's FY 1997 request. This request stands out during this period of declining resources, and for good reason. We are asking the American people to invest their money where it yields the highest payoff across the board, and we are basing this request on four basic principles.

First, our primary investments should be in technology research and development that are not being made by the private sector. Our role is to ensure that promising technologies are not discarded because they are too risky to attract private investment, or because individual businesses cannot capture the profits from successful projects.

Second, we should act as a technology broker, providing the information and technical assistance essential to attracting the private investment needed to commercialize new technologies. All of our programs fitting into this category involve very little federal investment relative to that made by the private sector.

Third, we believe it is essential to make investments in cost-reducing energy efficiency improvements in the low income housing stock. This makes sense not only because it reduces the energy cost burden of low-income households, and eliminates the painful choices between paying energy bills or meeting other essential obligations. Low income weatherization is a cost-effective investment that reduces uncollectible utility bills, and that makes it an investment that pays off for all of us.

Finally, and most importantly, the money that we invest for Americans in energy efficiency, like any sensible investment, must produce returns. Programs that do not offer the promise of strong returns will be discontinued.

In the past three years, the Department's energy conservation research and development programs have produced winning results such as development of the sulfur light which produces four times the light for one third of the cost of conventional lighting. This work received both the *Discover* and the *Popular Science* Technology Awards for 1995. Some examples of other program achievements over the past three years include:

- close to $40 billion per year savings in energy costs by the year 2010 through a combination of the commercialization of our R&D investments, and the impacts of codes and standards in the buildings sector;

- establishment of the Partnership for a New Generation of Vehicles to work with the private sector to develop an affordable automobile with three times its current efficiency by 2004;

- development of a new methanol reformer that could bring fuel cell cars one step closer to the market. The new reformer is compact enough to fit under a car hood, and works to release the hydrogen bound up in methanol in the gas tank;

- saving an estimated $53 million for small and medium-sized companies with a $12 million Federal investment as part of the National Industrial Competitiveness through Energy, Environment, and Economics (NICE^3) program. This program has 46 projects in 21 states with 55 percent cost-sharing from partners.

- saving the Federal government and taxpayers $1 billion a year by 2005 in energy costs at Federal facilities through the Federal Energy Management Program.

The Department's FY 1997 request reaffirms the Administration's commitment to energy conservation programs. Our FY 1997 request of $715.4 million for energy conservation research and development reflects a 33 percent increase over the expected FY 1996 funding level. Included in this request are increases for several Administration priorities, including: $52 million (for a total of $152 million) for the Partnership for a New Generation of Vehicles; $48 million (for a total of $82 million) for the conservation portion of the Climate Change Action Plan; $43.7 million to bring the Weatherization Assistance Program to $155.5 million; and the Federal Energy Management Program increases $13.4 million to $31.9 million. The overall FY 1997 request includes:

- $221 million for transportation sector programs to continue to support development and commercialization of transportation technologies to achieve the goal of tripling automobile fuel economy by 2004, with the associated benefits of reduced [reliance on insecure sources of oil imports], and lower environmental impacts such as greenhouse gas emissions. Other major elements of the program include research to improve the fuel efficiency of advanced mid-range and heavy duty engines, and the development and demonstration of alternative-fueled vehicles;

- $159 million for industry sector programs. Industry consumes 37 percent of all energy used in the U.S. The productivity and vitality of this sector are critical to the nation's economic health and well-being. The FY 1997 program emphasizes a research and development program that is designed in partnership with key industries to ensure a long-range strategy that works in U.S. industry's favor. A centerpiece of the effort is the "Industries of the Future" program (a $32 million increase); a partnership to develop research strategies with seven energy and waste intensive industries: steel, aluminum, metal casting, chemical, refining, forest products, and glass. These seven industries account for about 80 percent of all manufacturing energy use and 80 percent of the sectors' generated wastes. In just the Pulp and Paper industry alone, DOE's investment with industry has led to a research and development strategy that the industry itself expects will lower environmental compliance costs by $8 billion.

  In addition, funds are requested to restore the cost-effective Climate Change Action Plan activities of Motor Challenge, Climate Wise, Industrial Assessment Centers, and NICE^3

partnerships. These programs all generate high returns on our investments. Industrial Assessment Centers have provided technical assistance to small and medium-sized industries that have yielded savings of over $400 million for a Federal investment of $33 million. Climate Wise partners, are expected to realize $600 million in annual energy cost savings in the year 2000.

- $125 million for building technology sector programs to continue research and development in building system performance, building equipment and materials, and the implementation of energy efficiency codes and standards. Increases are included to restore initiatives such as Rebuild America, joint HUD-DOE affordable housing and codes and standards activities. Our Technology Introduction Partnerships will help stimulate the purchase of 50,000 high-efficiency refrigerators, 40,000 compact fluorescent light bulbs, and 5,000 advanced air conditioners by hotel/motel chains and public housing authorities; Advanced gas-fired heating and cooling technologies will near the market, the result of our research and development efforts, partnered with industry; and four hundred million square feet of building space will be made more energy efficient, using private funds, as a result of our Rebuild America program.

- $195 million request for the State and Local Partnership Programs including $155 million for the Weatherization Assistance Program, (up $44 million from the FY 1996 conference mark), and $38 million for the State Energy Programs (an increase of $12 million over the conference mark). The Weatherization Assistance Program is designed to increase the energy efficiency of low-income residences, particularly those of the elderly, people with disabilities, and families with children, while ensuring their health and safety. With the FY 1997 funds requested, the Program will rebound somewhat from a 50% downsizing in FY 1996, restoring it to 72% of its FY 1995 appropriated level. At this level, an estimated 79,000 homes will be weatherized, an increase of 22,500 over FY 1996 (but still 36,000 fewer than FY 1995).

  Weatherization Assistance is the critical core program for leveraging, through its network of State and local agencies, hundreds of millions of additional dollars from the Low-Income Home Energy Assistance Program and from utilities and housing resources. The FY 1997 request level of $155.5 million is the minimum level at which it is feasible to maintain this core function. Clearly, unless the number of local agencies making up the delivery system (which collapsed from 1100 to 750 in FY 1996) is restored, leveraging activity is drastically reduced and overall weatherization services will continue to drop. Funding below the request will end Weatherization as a National program; it will no longer be able to serve all counties, cities and towns, conduct full year operations in all regions, or maintain its workforce of approximately 8,000 skilled workers nationwide.

- $74 million for natural gas technology programs that make more efficient and effective use of clean, domestic natural gas. These include development of the GAX heat pump - expected to be 35% more efficient than the best available technology; development of advanced industrial turbines that are more efficient and 80 percent less polluting than conventional technology and R&D on natural gas vehicles - both light and heavy-duty - through engine optimization and on board fuel storage.

- $31.9 million is requested for the Federal Energy Management Program which represents an increase of $13.4 million over the anticipated FY 1996 appropriation. Our goal for this program is simple and makes bottom-line sense in a time of tightening fiscal constraints: This program is intended to equip Federal energy managers to make the decisions that will save taxpayers $1 billion a year in energy costs by 2005. This increase will provide the resources to centrally coordinate and assist agencies to use non-federal "alternative" financing resources, such as Energy Saving Performance Contracts, to install energy and water conservation measures.

Fossil Energy

The United States continues to rely on fossil fuels for about 85 percent of the energy it consumes. While we are working to encourage a greater diversity of energy sources, virtually every credible energy forecast projects that coal, natural gas and oil will continue to provide the greater share of the energy required to keep our economy strong into the next century. Our primary challenge is to increase the environmental performance and efficiency of fossil fuel recovery, conversion and end-use technologies while, at the same time, keeping energy costs affordable. For example, if the Federal Government can maintain its R&D partnership program with U.S. industry:

- In the 2000-2015 time frame, we will be able to reduce emissions of nitrogen oxides and air toxics from existing power plants by 70-90% , while reducing the cost of meeting existing and future regulations by over $7 billion per year;

- By developing cleaner, more efficient power systems, dominated first by natural gas technologies and later incorporating new generations of coal systems, we can create domestic and foreign market opportunities for U.S. manufacturers valued at $6-10 billion a year from 2001 to 2030;

- The Nation can reduce annual electricity costs by $8-13 billion beginning in the 2001-2010 timeframe through a combination of lower environmental compliance costs and more efficient power plants--both the result of advanced technology that will be made available by today's government/industry R&D partnerships; and

- By developing more effective and lower cost ways to find and recover domestic oil and natural gas, we can keep U.S. wells flowing, producing an additional 1 million barrels per day of oil and 2 trillion cubic feet per year of natural gas in the 2010-2015 time frame. This increased U.S. production will directly benefit our economy by generating more than $11 billion in domestic oil and gas sales--dollars that will stay in this country rather than flowing to foreign suppliers.

These energy opportunities translate directly into economic benefits, not only in terms of dollar savings for consumers and new markets for U.S. companies, but also in terms of U.S. jobs. The economic benefits of Federal investment in advanced fossil fuel technology could equate to almost 500,000 jobs in the 2001-2010 time frame.

Recognizing the intense -- and growing -- competition in the global market for new energy technologies, either the United States will capture these benefits or our foreign competitors will. With the substantial cutbacks in energy-related private sector R&D in the United States, we face a critical choice in the FY 1997 time frame. Either we continue to leverage Federal investment in fossil energy R&D with U.S. developers, or we risk abandoning huge domestic energy supplies and losing future market opportunities that could cost our economy billions of dollars in the 21st century.

We have chosen, in our FY 1997 budget, to maintain our commitment to advanced fossil energy technology. We are proud of our track record in producing measurable results, and we believe our FY 1997 program can build on the solid foundation we are establishing in advanced fossil fuel technology.

For example, in just the last three years, our fossil energy program has delivered significant successes, including:

- "Booked" natural gas reserves in Southwest Texas are being increased by nearly 4 trillion cubic feet due to DOE's support of natural gas exploration and production research, particularly projects that have discovered large quantities of "secondary gas" that had been bypassed by standard field operations. Gross production from these reserve additions alone could approach $1.4 billion;

- Ten DOE cost-shared oil recovery projects have made available at least 40 million barrels of additional domestic crude oil that otherwise would have left in the ground. Moreover, these projects have encouraged additional privately-sponsored field operations, producing millions of barrels of additional oil from U.S. fields and hundreds of millions of dollars in additional royalty revenue and other economic benefits;

- A sophisticated methodology that allows State regulators to validate "area of review" variance requests for oil and gas disposal and injection wells has already saved East Texas producers more than $86 million in regulatory compliance costs. As we work with other States to apply this new regulatory approach, hundreds of millions of dollars will be saved without endangering the environment. These dollars can be used to find and produce more domestic oil, helping to reduce our growing reliance on insecure sources of foreign imports.

- Because of our investment in clean coal technologies, we have inaugurated a new era of clean electric power generation from coal. The November 8, 1995, dedication of the pioneering Wabash River Coal Gasification Plant in Indiana heralded an entirely new way to generate electricity from coal with sharply reduced environmental emissions and increased efficiency.

- We have helped introduce more effective and lower cost technologies to lower emissions from existing coal-fired power plants. Today, because of our investment in advanced coal systems, one fourth of the coal-fired capacity in the U.S. now employs advanced nitrogen oxide control technologies that perform far better than previous systems, yet are among the lowest cost options available.

In preparing our FY 1997 fossil energy budget, we have also recognized that fiscal stewardship dictates that Federal spending be reduced.

Our FY 1997 request for Fossil Energy research and development is $348.5 million, a 17 percent decrease, or $73 million below the FY 1996 Congressional conference level. (The FY 1996 budget including funding for mining R&D, the majority of which has been proposed for transfer in FY 1997 to the Department of Health and Human Services. Even without including the mining R&D addition, the FY 1997 fossil energy R&D budget is more than 10 percent below the FY 1996 level and more than 20 percent below FY 1995.)

We can maintain a viable fossil energy R&D program at this level because are proposing to reduce the number of competing research contractors in some programs (the low-emission boiler system program, for example), complete funding for existing projects (the reservoir class oil field demonstration program), and reduce funding in other programs (such as fuel cells and advanced gas turbines).

We will also begin to save significant dollars from our management streamlining initiatives. For example, by the end of FY 1997, our fossil energy research and development staff (at both headquarters and in our field offices) will be nearly 100 positions less than in FY 1995, while our contractor staff will be reduced by more than 350 positions. We will be well into the privatization of the National Institute for Petroleum and Energy Research and will begin to see savings in overhead expenses resulting from this Strategic Alignment initiative.

The consolidation of our R&D field office structure from three independent offices to a single management structure with activities at three sites also allows us to better integrate the management of programs where research needs are similar.

In our FY 1997 budget we are requesting:

- for coal technologies, $102.6 million. Emphasis will be on developing progressively higher efficiency power systems that significantly reduce CO2 and greatly exceed today's environmental compliance standards while reducing electricity costs by 10-20 percent;

- for natural gas research, $103.7 million. The FY 1997 program will continue a strong emphasis on developing technologies that can produce and use the full potential of our domestic gas resource base. "High tech" exploration, drilling and production tools that can extract gas from difficult formations, such as the low-permeability deposits in the West, will be developed in cooperative programs with industry. Research will also continue on technologies that can upgrade natural gas that is below pipeline standards and convert remote sources of gas to transportable liquids. Our budget also continues development of advanced generations of "end-use" gas technologies, such as ultra-high efficiency gas turbines and fuel cells;

- for petroleum technologies, $52.5 million. The FY 1997 program completes funding for field demonstrations and emphasizes longer-term R&D. The supporting research program looks well into the 21st century when U.S. producers -- increasingly smaller companies with little, if any, research capability -- will need much better technologies to explore for remaining domestic oil supplies, to characterize more difficult and complex U.S. reservoirs, and to drill for and extract oil more cost-effectively than is possible today.

Clean Coal Technology

The current portfolio of projects in the Clean Coal Technology Program represents a sufficient number and diversity of technologies to position U.S. industry to develop and deploy a new generation of "world class" coal-based energy systems. Therefore, the Administration's policy is to complete its current cost-sharing commitments to industrial partners.

To date, 19 of the original 45 Clean Coal Technology projects have completed their test programs. Another 12 are either operating or are in advanced stages of construction. Ten projects are in the design phase, and one is still under negotiations.

The Nation is beginning to see the commercial dividends from its investment in clean coal technology. More than $9 billion in domestic and international projects are benefitting from the technologies demonstrated in the Clean Coal Technology Program and our associated research efforts. For example, sales of fluidized bed combustors have been promoted by the demonstration and experience gained in the Clean Coal Technology Project in Nucla, CO.

Recently, as environmental standards for nitrogen oxides (NOx) have tightened, improvements in low-NOx burner technology demonstrated in the Clean Coal Technology Program have begun to make a significant commercial impact. Fully one-quarter of the coal-fired capacity in the U.S. today now uses this technology, accounting for almost $1 billion in domestic sales. By the year 2000, 75 percent of the Nation's coal-fired capacity (virtually all of the existing boilers that can be suitably adapted) will be equipped with technology demonstrated in the Clean Coal Technology Program.

Other commercial success stories are emerging. A Florida utility will invest approximately $150 million to install an advanced flue gas scrubber first demonstrated in Indiana by the Clean Coal Technology Program. A municipal utility in Ohio will install another type of sulfur removal system demonstrated by the Clean Coal Technology Program in Kentucky. A Texas utility group will employ sophisticated computer software developed in the Clean Coal Program.

A basic tenet of the Clean Coal Technology Program has been the requirement for the industrial partner to repay the Federal investment when a demonstrated project or technology proves commercially successful. With the program now beginning to pay off in commercial applications, the Department has begun receiving its first repayments. To date, repayments have begun from Tri-State Generation and Transmission Association from the Nucla project in Colorado, Babcock & Wilcox in Ohio for commercial sales of its low-NOx burner technology in Pennsylvania, Airpol Inc. for commercial use of its environmental control technology in Ohio, and CQ Inc./ABB Combustion Engineering for commercial sales of its acid rain advisor software to a corporation in Texas.

We believe, however, that we can reduce the amount of funding previously appropriated by Congress without endangering our commitments to the remaining ongoing projects. We believe we can permanently rescind $325 million from the program without damaging our commitments to ongoing, viable projects. This would reduce the overall Federal share of the program to $2.225 billion, still a substantial investment in new, cleaner coal technologies. In addition, the Department is proposing to defer until FY 1998 authority to spend nearly $313 million of available funds. A slower spending rate for several projects makes this delay in obligational authority possible; however, the Department expects to need the funding in FY 1998 to complete our commitments to the program's final projects.

Naval Petroleum and Oil Shale Reserves

We continue to make excellent progress in our initiative to privatize a major portion of the Naval Petroleum and Oil Shale Reserves. The National Defense Authorization Act for Fiscal Year 1996 authorizes a 2-year process for selling the Elk Hills Naval Petroleum Reserve in California. At this point -- two months into the process -- we have:

- selected CS First Boston investment firm as the financial advisor to administer the Elk Hills sale;

- retained the services of Ryder Scott Petroleum Engineers to produce a report on the hydrocarbon reserves at the Elk Hills field;

- initiated activities to establish a final equity determination with our Elk Hills operating partner, Chevron;

- begun the environmental review process required by the National Environmental Policy Act as part of the divestiture process,

- opened the solicitation for the five independent assessors who will provide the basis for our determination of a minimum acceptable bid price for Elk Hills; and

- acquired Gustavson & Associates to evaluate options for sale or continued Government management of NPR assets other than Elk Hills.

In authorizing the privatization initiative, Congress, appropriately in our view, incorporated a legislative safeguard requiring the Department to determine that the market value of the field exceeds the value to taxpayers of continued Federal ownership. If it does not, the Government will not proceed with the sale.

Also, the legislative timetable for ensuring that the sale is carried out in a fully competitive fashion runs through February 10, 1998 (well into FY 1998). While this process is underway, our legislative directive is to produce the Reserves at the maximum rate which will permit economic development and to study options for the other properties in the Naval Petroleum and Oil Shale Reserves.

Therefore, our FY 1997 budget request for the Naval Petroleum and Oil Shale Reserves of $149.5 million provides for a minimum stewardship program to keep the fields producing and generating revenue while the divestiture process and studies are underway. Available prior year funds will be used in FY 1996 to conduct the pre-sales activities directed by Congress in the authorizing legislation.

Strategic Petroleum Reserve

The Administration remains committed to maintaining a Strategic Petroleum Reserve that can counter the potential economic harm of oil supply disruptions. From an energy security perspective, our view remains that the Nation should have as large a Strategic Petroleum Reserve as it can afford.

For FY 1997, we are requesting new budget authority to maintain the current oil inventory and to continue refurbishing critical equipment. Our $221.3 million request is necessary because we no longer have the option of using funding previously set aside for oil purchases as we have done in recent years.

Our request for new budget authority is also necessary because we are not proposing to sell additional volumes of stockpiled oil in FY 1997 to pay for the annual operating and maintenance expenses. A large Strategic Petroleum Reserve remains our first line of defense against oil shortages, and we believe that further sales of SPR crude oil should be carried out only after other budget alternatives have been considered. We recognize that the President's 7-year balanced budget plan contains a proposal to sell $1.5 billion of oil in the year 2002 (at projected prices, the amount is equivalent to approximately 12 percent of the Reserve's current 587 million inventory). Two points regarding this proposed sale should be emphasized:

(1) The Administration must weigh such energy-related matters in the context of broader national policy objectives. In the next several years, a balanced Federal budget will be crucial to the economic health of our country. The President's long-term balanced budget plan reflects that difficult trade-offs must be made if we are to meet this bipartisan objective.

(2) The timing of such a sale has been purposefully delayed until the last year of the 7-year budget plan so that other alternatives can be fully considered before taking this step.

In FY 1997, we will continue our life extension program, replacing obsolete equipment and streamlining and standardizing equipment to reduce operating and maintenance expense. By the year 2000, when this effort is completed, the readiness of the Strategic Petroleum Reserve will be extended through at least the year 2025. We will also continue, in FY 1997, the corrective actions necessary to restore the full capabilities of the Reserve.

In anticipation that the United States will not acquire more oil for the Reserve in the foreseeable future, the Department will continue an initiative started in 1995 to lease space in the Reserve to foreign governments for the storage of their strategic oil. We anticipate potentially substantial revenues for the United States and cost savings for our partners in the International Energy Agency. We will also continue our commercialization efforts to lease or sell pipelines and terminal facilities that could be used by private industry but still supply the capabilities needed by the Reserve in an emergency. This effort will generate revenues and significantly reduce the annual maintenance expense of the Reserve.

Energy Information Administration

The Energy Information Administration (EIA) has two primary roles. The first is to conduct information and analysis functions as required by statute. This consists of the development and maintenance of a comprehensive energy database and publication of reports and analyses for a wide variety of customers and specific reports which are required by law. The second is to satisfy inquiries for energy information, from policy makers, from other Government entities, the energy industry and the general public. To fulfill these roles, EIA collects, analyzes, and disseminates information on energy reserves, production, consumption, distribution, prices, technology and related integration, economic and financial markets.

The FY 1997 budget request for EIA is $66.1 million, 9 percent below the anticipated FY 1996 appropriation. In addition to this amount, $4.8 million is requested within the appropriation for the Office of Energy Efficiency and Renewable Energy for activities to be conducted on a reimbursable basis. Thus, the program funding for EIA will total $70.9 million. These funds will support core EIA data and modeling activities needed to establish energy efficiency program needs and measure program results. Due to budget constraints, between FY 1996 and FY 1997, the depth and scope of EIA's traditional energy program will be significantly altered -- these reductions include: elimination or reduction in the scope of ten publications, a 35 percent reduction of mid-term forecasting and related analysis, elimination or reduced frequency of data collections, and elimination of computer disaster recovery capability.

Sound policy making, the efficient operation of energy markets, and public understanding of energy issues all depend on accurate objective energy information. EIA furnishes such information at moderate costs. Its impact has grown in the past year as intelligent use of electronic dissemination has allowed information previously available to a few energy experts to become readily available throughout the country.

Last year EIA was hit by the steepest cuts of any major federal statistical agency. We must prevent a recurrence of last year's reductions. The Administration, the Congress, and the public need a strong EIA.

I would repeat just two points made by a Washington Post editorial last July:

> First, "the work of energy statisticians involves the government's central responsibility to stabilize the economy."
>
> Second, "it's better to base public policy on accurate numbers [that EIA provides] than on the other kind."

Economic Regulation

The Petroleum Overcharge enforcement activities are nearly completed. Compliance activities now reside within the Office of General Counsel, and have declined to a level that requires no new appropriation in FY 1997. Prior year balances are sufficient to finance the wrap up of these activities. The regulatory activities administered by the Office of Hearings and Appeals lag the compliance activity by two years, and as a result, the Department requests $2.7 million in FY 1997 to process and resolve applications for refund requests initiated under the Emergency Petroleum Allocation Act of 1973.

Conclusion

In closing, I would like to return to the message on which I began.

By almost any measure, it is clear that during the past three years we have dramatically reformed the Department of Energy. Our programs now deliver more results at a lower cost to the taxpayer. We have greater sense of the long-term purpose of our efforts. We have codified the specific outcomes of our efforts in a Performance Agreement with President Clinton, and we will be held accountable to those commitments. Again, I appreciate this opportunity to address you and look forward to your questions.

Mr. REGULA. Well, I know that some of my colleagues have other committees, so I think that I'll defer my questions for the moment and give them an opportunity to ask questions.

SALE OF NAVAL PETROLEUM RESERVES

Mr. YATES. Yes, I appreciate it, Mr. Chairman. We're delighted to welcome the illustrious Secretary of Energy again to our committee and to hear her expert testimony.

We have a letter here dated April 24, 1996 which is fairly recent.

Secretary O'LEARY. Just under the wire, Mr. Yates.

Mr. YATES. Yes, and I must say that I had the impression that this is a letter that speaks to the sale of the Naval Petroleum Reserve at Elk Hills—papers falling all over? [Laughter.]

Secretary O'LEARY. Yes, papers falling around me. I now have a copy of the letter. I'm fine, sir.

Mr. YATES. Okay. Now the second paragraph says that this Public Law 104–106 was signed into law on February 10 by President Clinton. The act requires many specified actions by the Department of Energy by specified times to prepare for the sale of Elk Hills reserve. The law requires the Department to hire an investment banker, five independent experts, several consultants, engineers by dates specified in the law. The act further requires the sale of Elk Hills be completed within two years from the date of enactment and submission to Congress of a report of the results of the study of other Naval Petroleum Reserves by June 1, 1996. Now that's a little more than a month away. Are you ready for that?

Secretary O'LEARY. I'm not. This is a date that we will not meet, Mr. Yates, and let me explain to you why. The assessment required by any business practice that I know of could not have been conducted in the time required. You just pointed out that it's a very short timetable.

Mr. YATES. It's very short, yes.

Secretary O'LEARY. We will deliver that assessment, instead, at the first of November. I believe that that is appropriate against all business practices that I know of which ask you to go in and look at a mineral resource and assess its value.

Mr. YATES. Have you appointed your required, statutory staff yet?

Secretary O'LEARY. Yes, we have, and we did all of that approximately two or three weeks ago, and to my recollection a press announcement accompanied all of those decisions. We brought on all of the experts to do what I would consider—what I would characterized as "due-diligence examination" to accompany the sales.

Mr. YATES. Okay. I didn't see the names of the investment banker and the five independent experts. Could you supply that for the record?

Secretary O'LEARY. I can indeed. But I can do better than that. I can—my staff wants me to do it now so they won't have to do it later.

C.S. First Boston is the investment banker. The independent petroleum firm is Ryder Scott. The independent——

Mr. YATES. Wait a minute. Don't go so fast.

Secretary O'LEARY. Sorry, sir.

Mr. YATES. No, that's all right. The investment banker retainer you named.

Secretary O'LEARY. C.S. First Boston.

Mr. YATES. That's right. Five independent experts. Now have you appointed five independent experts?

Secretary O'LEARY. That's correct.

Mr. YATES. All right. Will you name them now?

Secretary O'LEARY. Ah, now I'm going to have to provide a list of those experts for the record. I can do everyone else, but I will provide that for the record.

Mr. YATES. All right. Independent petroleum consultant, and then it says other—I assume he will consult with respect to other NPR assets. What does that mean?

Secretary O'LEARY. He is to do the work to study the options for dispositions of other of the NPR assets with exception of Elk Hills which is already the subject of sale, and the firm there is Gustavson and Associates.

Mr. YATES. I see. Well, are the others subject to sale?

Secretary O'LEARY. Well, we're using the more polite word of "disposition."

Mr. YATES. All right. Then you have an independent petroleum engineer for equity determination.

Secretary O'LEARY. That's correct.

Mr. YATES. Okay. And who is that?

Secretary O'LEARY. I believe that that is Ryder Scott.

Mr. YATES. All right. Independent petroleum engineer reserve rep.

Secretary O'LEARY. I'm going to have to provide that for the record. You're down to detail that I don't know, sir.

Mr. YATES. But I thought that you had said that—you indicated that all of these had been——

Secretary O'LEARY. Oh, indeed, they are. And the point that I am making, Mr. Yates, is that I don't have the names of all of the firms. We're doing this as discrete pieces of work. What I asked for——

Mr. YATES. But doesn't your body guard behind you have the names?

Secretary O'LEARY. Oh those are not my body guards. [Laughter.] Those are my brain guards. [Laughter.]

Mr. YATES. Well, does your brain guard behind you have those names?

Secretary O'LEARY. No, but we can provide them for the record. You are down to the detail that—I think that the person who has responsibility for this project would know.

Mr. YATES. Well, we want to know how good they are.

Secretary O'LEARY. Well, we think that they are excellent, and we went through a very correct and appropriate review of the capability of all of the experts who we were required and believe that we should be using to conduct these sales.

Mr. YATES. Okay. Then you have an EIS technical support person.

Secretary O'LEARY. That's correct.

Mr. YATES. And his name will be supplied?

Secretary O'LEARY. We will supply each and every one of these names for you, sir.

Mr. YATES. All right. And then support services general for 400 and attorney advisor for 250 and salaries and travel for 50.

Secretary O'LEARY. We'll give you the answer.

Mr. YATES. Why—I look at all of your experts, and you get down to the lawyer, and he's not paid nearly as well as the others.

[The information follows:]

NAMES OF EXPERTS FOR NPR DIVESTITURE

1. Investment Banker—C.S. First Boston.
2. Independent Petroleum Engineer—Ryder Scott for Reserve Report.
3. Independent Petroleum Consultant—Gustavson & Associates for Study of Other NPR Assets.
4. Independent Petroleum Engineer—Not Yet Selected For Equity Determination.
5. Attorney Advisor—O'Melveny and Myers.
6. EIS Technical Support—ICF Kaiser Consulting Group.
7. Five Independent Assessors—Not Yet Selected.
8. Support Services—ICF Kaiser Consulting Group—Provides EIS Technical Support and Project Support Planning/Scheduling Support.

Cost estimates for Attorney Advisor and Support Services are FY 1996 costs only. Additional costs will be incurred in FY 1997 and FY 1998. Travel costs are for internal DOE staff travel required for overall divestiture management and oversight of contractors' activities.

Secretary O'LEARY. Well I'm not certain that we're not using our own lawyer in which case he's already earning at a government service general schedule.

Mr. YATES. Ah—that's the allocation. Now, I read—I assume my time is up, Mr. Chairman. I could go on. [Laughter.]

Mr. REGULA. Why don't you finish this up.

Mr. YATES. Yes, let me—All right, then your third paragraph says, "Since no additional appropriations have been made specifically for these required initiatives, it's the Department's intent to carry them out by use of unobligated carry-over funds from Fiscal Year 1995." What kind of funds are those? I mean unobligated carry-over funds. Were they originally proposed for certain programs?

CARRYOVER FUNDS

Secretary O'LEARY. Exactly. Well, I have a lengthy study which has been made available, I suspect, to all of you which has examined the question of unobligated funds within the Department of Energy.

Generally what happens is that programs earmark funds to conduct the work that has been mandated by the Congress or determined by the Executive Branch. They are set aside against bills to be presented. When bills are presented and finally agreed upon, of course, the funds are released.

As often is the case, sometimes we get projects that are not completed. In the Fossil Energy Program, that provides the wherewithal for us actually to be withdrawing funding support from that program for this year simply because all of the projects that we've planned for have not gone forward and were not yet economic.

It is from this area that the unobligated funds come, and often if programs are terminated then we have funds available for movement.

Mr. YATES. You use the phrase "based on lower than expected oil prices." I have the impression that oil prices have gone up.

INCREASED OIL PRICES

Secretary O'LEARY. Well, it's only happened in the past season. And before you arrived, the Chairman and I had a discussion about the fact that the recent rise in oil prices are occasioned by several things.

One, seasonality. They always go up just before the summer driving season.

Two, supply. Stocks are generally low after a very cold winter. That's been the experience in the United States and anywhere in Europe for the entire winter.

Finally, just in time inventory practices which had led many to bet on the fact that if Iraq and the UN could reach agreement about the sale of Iraqi oil for food and medicine, the supply of Iraqi oil re-introduced to the market would cause oil prices to go down. In point of fact that negotiation has not been concluded, and that's why prices are up.

But normally and generally through the latter part of this year, oil prices have in fact been extremely low which is a complaint heard from the industry for the three years that I have been in this job.

Mr. YATES. The people whom we name, and whom we listed, are listed as earning certain amounts of money. Are those firm and established by contract?

Secretary O'LEARY. Mr. Chairman, I can answer that——

Mr. YATES. In other words, will you required more—at least this sum and possibly more?

Secretary O'LEARY. Here's what I would say: I would say that these figures have been put on the table as a result of bids received. From what I know in my experience both outside of government and inside of government, is that these are estimates and they can be either lower or higher.

Mr. YATES. They are not the subject of contract with people yet?

Secretary O'LEARY. They're subject to contract, but a contract against performance. If performance is incomplete or if the time that it takes to get the service is less, then the bill will, of course, reflect those facts.

Mr. REGULA. Oh, okay. I think I'm going to Mr. Skeen.

Mr. SKEEN. We want to welcome you, Madam Secretary.

Secretary O'LEARY. Thank you, Mr. Skeen.

Mr. SKEEN. By the way, I think you are probably one of the most energetic Secretaries of Energy we've had in a while.

Secretary O'LEARY. Thank you, sir. Thank you very much. I've always looked behind me and figured that I have to walk fast. [Laughter.]

Mr. SKEEN. Well, from where I sit, there's nobody pointing anything at you.

Secretary O'LEARY. Thank you, sir.

WASTE ISOLATION PILOT PLANT PROJECT

Mr. SKEEN. Let's talk about a subject that we don't speak about often enough and that's the WIPP pilot project in Carlsbad.

Secretary O'LEARY. Fair enough.

Mr. SKEEN. I understand that we've had some changes. We've got a bill in H.R. 1663, and there have been some provisions, I think, added to it, and it's now been submitted to the EPA, and I wondered if the DOE would support this advanced opening date.

Secretary O'LEARY. Mr. Skeen, I want to first begin by thanking you and your firm insistence that we continue to do the activities required to see that the WIPP is opened in April of 1998 as we have now committed. I understand that the effect of your legislation has always been to potentially advance the date.

The things that we like about your legislation, and I think you are clear about EPA's position, is that the requirement for no-migration studies. EPA and the Department therefore agree, that it is absolutely not necessary, and we think that that is a good move.

With respect to going to——

Mr. SKEEN. But that's progress.

Secretary O'LEARY. Yes, it is. And I think progress on our side to bring you the facts. I understand that this requirement is not necessary for this purpose.

I might point out to you that the Attorney General of the State of New Mexico likely will have another thought about this, and we'll probably have to deal with him once again.

Mr. SKEEN. Well, he's joined now by the Attorney General of the State of Texas. They are big buddies. But they are both going to get thrown out of course, so don't worry about it.

Secretary O'LEARY. Fair enough.

Now let me move to your wiping away of the time that we have to simply let the decision for go ahead from the EPA stand for review. The 180-day requirement, in the view of those who work with and for me, simply opens the door to permit others to second guess the EPA. As is usually the case, when the EPA acts on a matter, in which they have jurisdiction, before the Department can begin construction or take an action, usually we simply let an orderly time pass, and the Department gets about its business. This 180-day requirement, in point of fact, makes no sense to us.

The one area where we have a quarrel with you, however, is the removal of EPA from the process entirely. My sense is that our relationship with the Environmental Protection Agency and their desire to see this project open and provide the kinds of assurance that the public requires on environmental protection gives them an important role to play.

But I think that you have put your finger on the two things that ought to be removed, and we agree with you there.

I want you to know that we are in constant contact with George Dials. I am convinced that he is going to make this schedule, and I've got my personal commitment behind that.

Mr. SKEEN. I have a good feeling about it, too.

By the way, EPA is back in the formula, in the mix, but what we want to do is stick a spur in their ear over there so that they get off their stump and either come up with some steps—which they have done. There are some 40 concrete steps that are requirements that they are going to meet on this thing.

We have no objection to that, but this business of having a nebulous study that we're going to do, and study after study—we've been doing this since 1975, and I think it's long since due that we get this stuff off of those basketball pads that it's been sitting on for several decades.

Secretary O'LEARY. Fair enough.

Mr. SKEEN. And if the environmentally-concerned people could really understand the dangers that are involved and the kind of stories we're accepting now rather than an answer, an ultimate answer to this thing.

And I want to say how much I appreciate the cooperation we've had from your Department and yourself personally. You've been down there, and you've seen the site, and you know what it's all about and it makes good common sense. Transportation is no problem, and I think that's what the attorney general is speaking about.

Secretary O'LEARY. Well, I hope to get down there again and do all that program review for them.

Mr. SKEEN. The next question is, the requirements that have been asked to be met would entail some additional costs. Are we including that in the budget request for the coming fiscal year?

Secretary O'LEARY. Yes, we are, and Mr. Skeen, I want you to be secure in the sense that the budget that we put forward supports these efforts. We have been very careful to see that, while we have been reducing the costs of all of the Department's activities, we have provided to the WIPP exactly what is necessary to meet all of the milestones outlined.

Mr. SKEEN. So not withstanding the movement of dates or things of that kind, we've got the cost element factored?

Secretary O'LEARY. We've worked very hard to get the cost number right, and I know that it is right. I am confident that it is right.

NATIONAL TRANSURANIC WASTE PROGRAM

Mr. SKEEN. Let me ask you about the National Transuranic Waste Program, and I'm sure there's some interest from Washington State as well on this particular issue.

Has the National Transuranic Waste Program effected the new requirements of the EPA? Or is this another factor that we're going to go through?

Secretary O'LEARY. I'm not in a position to talk to you about the requirements of the program. I can talk to you about—well I want to say it intelligently. So let me provide that to you for the record.

Mr. SKEEN. Well either that or I think that we ought to be real quiet about it and maybe it will go away.

[Laughter.]

Secretary O'LEARY. Let me provide it for the record.

[The information follows:]

REQUIREMENTS OF THE NATIONAL TRANSURANIC WASTE PROGRAM

The mission of the National Transuranic Waste Program is to operate the Waste Isolation Pilot Plant (WIPP) for the safe disposal of transuranic waste and establish an effective system for management of transuranic waste from generation to disposal. The National Transuranic Waste Program does not affect requirements of the Environmental Protection Agency (EPA) but rather implements the program that demonstrates compliance with EPA regulations. An example is the recently promulgated compliance criteria, 40 CFR 194, which is the basis for how EPA will evaluate the Department's compliance with criteria acceptable for licensing WIPP. The DOE

Carlsbad Area Office has initiated meetings with the EPA to reach common understanding of what is required to implement this latter regulation.

Mr. SKEEN. I understand the potential of raising new issues. We have new elements and want to do inspections and do laboratory work and new requirements and so forth. We could go on about that ad infinitum, and it's about time we got a description.

By the way, too, I would ask you, the compact agreements on low-level waste, non-defense generated, really bothers me after all we've gone through and the blood we've shed and the tears we've shed over the Waste Isolation Pilot Project. States are now compacting with each other to develop new repositories for low-level waste of a non-defense nature; medical waste and things of that kind. Would you comment on what that's going to do to this whole mix. Whose oversight is that responsibility?

Secretary O'LEARY. Well, interestingly enough, when the Congress decided to parcel out responsibility for the management of waste, Congress wisely decided that non-defense, low-level waste responsibility belonged to the States.

Mr. SKEEN. To the States.

Secretary O'LEARY. We like that at the Department of Energy. We have responsibility to provide for them technical advice, and we've worked to do that.

Quite frankly, my concern has been the opposite, Mr. Skeen, because as I have seen, and I did very personally when I was living in Minnesota, the inability of the State compacts to come to agreement on site selection. I understand that more and more pressure is likely to be put on the Federal facilities. So I am pleased to see some development going ahead. This is especially the case in the Southeast compact with South Carolina, and I believe some progress in the northern States where I lived. Because that takes what might be a back up of what might unmet——

Mr. SKEEN. A back-handed responsibility that you have no——

Secretary O'LEARY. Yes, I was about to say unmet potential, and that puts far more pressure on our system which we cannot take at the moment. We need to meet our own obligations and meet them on time.

WASTE REPOSITORIES

Mr. SKEEN. Well, I understand that. What bothers me is that are these depositories—these compact depositories going to be required to go through the same introspection and inspection and criteria and standards that you are asking the Waste Isolation Pilot Project.

Secretary O'LEARY. I hate to comment on that from a technical perspective. What I would say is this: that I believe that the same kinds of political issues arise, and they have caused a slow down on the inability of site selection. But I want to make it clear that there's this excellent progress occurring. Once again, I point out what has happened in South Carolina, and what I believe to be happening also in the northern tier States and in New England as well. The States would want me to say that.

Mr. SKEEN. It's been very interesting to see that the contractors of the WIPP installation now question the opinions from other States about how wonderful these compacts are going to be and nobody can tell you. They are driving some of this waste right by the Waste Isolation Pilot Projects. I think that maybe we ought to—if somebody wants to put some money in this program and one State has a compact with another, we'd be very happy to take it at WIPP.

Secretary O'LEARY. Mr. Skeen, I hate to disagree with you, but I would submit to you that you probably don't want to be a volunteer.

Mr. SKEEN. I'm just throwing this thing out. If we're going to be in the business of doing this between States, let's help the project that's already been approved.

But I understand what it does to you, and I would share your concern, and I don't want to put your foot in that kind of a trap.

Secretary O'LEARY. Thank you, sir.

Mr. SKEEN. They don't use those kind of traps anyway. [Laughter.]

I appreciate the work, and I appreciate the progress that you've made, and I think that we're at least about to get the door slung.

Secretary O'LEARY. We are going to get that door slung.

Mr. SKEEN. I appreciate this very much. It's been 20-some-odd years dealing with this. We've got stuff stacked up now in Idaho, Colorado, Washington State, Texas, and all over.

Secretary O'LEARY. Well, it's been a partnership, and it would really reflect on the great partnership between the delegation and also the city leaders.

Mr. SKEEN. Absolutely. They deserve a lot.

Well thank you very much.

Secretary O'LEARY. Thank you, sir.

Mr. REGULA. Mr. Nethercutt.

Mr. NETHERCUTT. Thank you, Mr. Chairman. And welcome Ms. O'Leary, Madam Secretary.

PRIVATIZATION OF THE FAST FLUX TEST FACILITY AT HANFORD

I want to talk to you about Hanford, as you can probably imagine.

Secretary O'LEARY. I'm not shocked.

Mr. REGULA. You guys are parochial. [Laughter.]

Mr. NETHERCUTT. I agree with your privatization council which is looking at all major DOE operations. And I know you have made privatization a key part of your policy, and I think that's good.

The Department, I understand, is searching for a method to secure tritium for our Nation's nuclear stockpile. As you know, we have the FFTF at Hanford—the Fast Flux Test Facility. Our sense is that it can serve as an interim, short-term producer of tritium until a more permanent facility is constructed. And my understanding is that some companies want to gather together to privatize the FFTF and use it not only as for tritium short-term, but also use it later as a cancer facility producing medical isotopes. I understand that this medical isotope approach to treat brain cancer has great possibilities. It is especially used in the Mayo Clinic, I'm told.

Would you commit to including in your privatization council the decision on this FFTF facility? What's your feeling about that?

Secretary O'LEARY. Mr. Nethercutt, I have now on two occasions taken very seriously with the delegation and the citizens of the

State of Washington, a re-look whether or not there continues to be a mission for the Fast Flux Test Facility. I need to remind you that in the first month of my tenure as Secretary of Energy, I was asked to review the decision made by the prior administration for shutdown, and I really looked at the issue as one of politics, because that is always the case, technology and economics. I also understood that perhaps to satisfy all of the people on each side of that issue, I took an independent look.

I commissioned three experts in nuclear energy and the technology of the conversion. The issue was whether this could be used for isotope production and other issues. An economist, actually a facility economist who deals with power plants and research reactors was commissioned to go in and tell me what would be the cost of conversion of that facility so that I could make a decision about whether or not we could afford it. I wanted to be in a position to reaffirm or open the decision of the prior Secretary of Energy. After about six months we got the answer on the economics, and I once again reluctantly shut the door on the facility.

When it reached me this latest time, it was presented to me as one of a private-sector initiative in which the government takes on some of the obligation. Now my question is profoundly focused on whether or not we can use that facility to meet the tritium requirements of the Department of Defense.

I want to be very blunt with you to say that the Department of Defense is my customer in this regard, and I have some clear directives with respect to quantities of tritium to be produced and the timetable.

We're already on a path forward allowing us to prove two technologies—one actually a technology and the other, if you will, a social, economic and political barrier—to get the answers and more importantly to produce tritium for the Department of Defense and for this Nation's deterrence, nuclear deterrent.

Nonetheless, I have asked for a hard and a quick look at the Fast Flux Test Facility to answer the question of what would be the cost to use this facility as an addendum or an early on adjunct to meet our needs. If the answer were that we can get to producing the tritium fast and at a low cost, then it would be a no brainer. We would say, "Let this happen." Sadly, the technology has not yet been proven. So we've got to answer the question of whether or not the targets that were contemplated for use can now be used in the production of tritium.

I need to bore you further by telling you that I have had two entities look at this issue, each of them with their own enlightened self-interest with respect to the work, and they, you're not surprised at all, came up with two conclusions. The entity that may indeed be able to benefit, has said that yes the targets appear useable and the technology to convert the reactor itself is simple. Whereas the facility, the entity that may have something to lose has said that the advanced targets are inappropriate, and the technology may be out of hand.

I need, once again, a disinterested look. I intend to get that. I think that once I have a disinterested look then your question with respect to whether or not the private-sector investment makes this a go is an important piece to do. I am looking at this not simply for the production of tritium but also for isotope production as you have indicated. Lately we have come to understand that we also need to look at this facility for plutonium disposition.

Now, having said all of those things, and having said them to a degree that lets you know how deeply I have been involved in this issue now on two occasions, I don't want to offer hope-beyond-hope. The one thing that you now know about me is that I am willing to look at the issue, and I also am insistent upon a disinterested look.

We will accomplish those things. I have asked Deputy Secretary Charles B. Curtis to undertake this responsibility. He owes me and will give me a timetable in which he thinks we can answer the questions with respect to cost, with respect to technology, and then we can get on to the next step.

Mr. NETHERCUTT. That was going to be my follow-up question. When will the disinterested look occur? What is the timetable? It sounds to me like you don't have it.

Secretary O'LEARY. I don't have it yet, but it's an assignment that I have given to Mr. Curtis. He's had it for two weeks. He's going to lay out his timetable for me this afternoon or tomorrow.

Mr. NETHERCUTT. Would you kindly provide that information to me as you see appropriate to do so?

Secretary O'LEARY. I'd be delighted to do so.

[The information follows:]

FAST FLUX TEST FACILITY

The Department is not currently pursuing the development of a timetable for tritium production at the Fast Flux Test Facility.

HANFORD TANK CLEANUP PRIVATIZATION

Mr. NETHERCUTT. I want to ask you, too, with respect to Hanford, my understanding is that you are setting aside a fund of about $185 million toward tank cleanup privatization. Sort of an insurance policy. I understand that budgets are tight for everybody. I'm wondering are you planning to take it out of the overall budget. Is this a wise expenditure at this time? Just maybe justify your thinking, assuming that the way I've stated it is the policy that you are wanting to undertake.

Secretary O'LEARY. I regret the characterization of what I call "fencing" of this fund has been to look back to the environmental management budget and to presume that that will come directly come from the Hanford budget allocation. I suspect that we have done something in our technical look to lead those who've examined the budget to that conclusion.

Let me say this: that in negotiating this special fund for privatization efforts we have done it as a part of our larger presidential effort to look at, just as you have indicated, opportunities to save money in the long run by privatizing. The things that we feared with this presidential initiative—and I understand that the Department of Energy, along with many other agencies, are part of this initiative—the thing we feared is that if we did not spend some money this year, as we got further out and got closer to our seven year line for balancing the budget and reducing the deficit that there would be no funds available. My sense in this regard is that, just as I have talked with Mr. Yates about the use of unobligated funds, we can find this money, and I have no intention that this should impact on what has been excellent progress and cleanup of Hanford.

I need to tell you that in my program review with all of the contractors and the senior managers at Hanford that occurred just ten days ago, I'm extremely impressed by the work that they have accomplished, and more importantly, at the way that they have gotten busy to cut costs while realizing results. So I am not going to see them penalized for their excellent work by taking money away from a near-term and a very important goal.

Mr. NETHERCUTT. That is the report that I am receiving, too, is that things are better. And for that, we're thankful in terms of the tremendous cost that we've put into it in preparation for making things better, and I think that there is a good record now and in the near-term. So I thank you for that.

Secretary O'LEARY. Sir, I want to use this as an opportunity for just a moment to just highlight——

Mr. YATES. Will you yield for just a moment? I missed something here.

Are you discussing the possible private sale of Hanford?

Mr. NETHERCUTT. No, sir.

Mr. YATES. The privatization?

Mr. NETHERCUTT. The privatization of certain functions. There's a reactor there that we're exploring whether it could possibly—rather than having it shut down or eliminating it, maybe we could privatize it on a short-term basis. On an interim basis it will produce tritium and also brain-cancer-therapy research.

Mr. YATES. I see. How would it be privatized? By sale?

Secretary O'LEARY. Much in the way that I'm contemplating the sale of the Naval Petroleum Reserve Elk Hills facility. And much as we have considered——

Mr. YATES. Gosh, I would hope not, because that's terrible.

Secretary O'LEARY. Well, let's take it a step further, though. Much as we contemplate the production of——

Mr. YATES. I'm sorry, but just a moment. One second, Madam Secretary.

Secretary O'LEARY. Yes, sir.

Mr. YATES. I have taken over your time, and I didn't want to do that.

Mr. NETHERCUTT. That's all right.

Mr. YATES. I'm trying to understand this. I didn't know what you're doing.

Mr. NETHERCUTT. No, that's fine.

Let me get back, if I may—just one very quick question. It's in line with Mr. Yates' prior inquiry about contractors. Mr. Chairman, if I may submit some other questions for the record.

Mr. REGULA. Oh, yes, the record will be open because most of us will have more questions.

Mr. NETHERCUTT. Have you had any dealings, as you sit here before us, in your memory——

Secretary O'LEARY. That's a long one, sir.

Mr. NETHERCUTT. Well, do your best, and if not, certainly for the record.

Secretary O'LEARY. Fair enough.

Mr. NETHERCUTT. Do you have any dealings or contracts that you are aware of in your agency with a company called Global Exchange?

Secretary O'LEARY. Oh that's a detail that I don't know and would never want to know.

Mr. NETHERCUTT. For the record.

Secretary O'LEARY. I don't deal with contractors. [Laughter.]

Mr. YATES. It makes the rest of us want to know.

Secretary O'LEARY. And the point I'm making, Mr. Nethercutt, is that I have, with a great deal of personal attention ensured that I am not a source selection official, and the only contract I have ever signed has been to turn over some of our property to the U.S. Enrichment Corporation, because I believe that others who are more engaged in the detail of the contract ought to do so. But we may search—we will search the record—will you give me the name again? Global——

Mr. NETHERCUTT. Sure. Global Exchange, Inc., I think it is.

Secretary O'LEARY. We can probably research that by the end of this week, which is tomorrow.

Mr. NETHERCUTT. That's fine.

Thank you, Mr. Chairman. I will submit some other questions for the record.

[The information follows:]

GLOBAL EXCHANGE INC.

The Department of Energy conducted a search of the Procurement and Assistance Data System (PADS) for a contract with Global Exchange, Inc. PADS is the Department's system for capturing information on contracts, grants, and other prime awards made by DOE. Both the active and history (retired) data bases were searched, and no record of an award to a company named Global Exchange was found.

FUEL CELLS

Mr. REGULA. Let's start out with fuel cells. In your statement you referred to bringing fuel cell cars one step closer to the market. We've been hearing about fuel cells for years. Do you really think that fuel cells in vehicles will be an economic reality?

Secretary O'LEARY. I do, indeed. I spend time in the real world because it puts me in the position to talk about our work not from reports or from recitation that somebody has given me. I've actually have been there, seen, and am engaged with the people who are doing the work.

This is the case with respect to visits to our laboratories and more recently with our work under Clean Car which has some alphabet soup that I refuse to memorize—the Partnership for a New Generation of Vehicles that will reduce energy consumption and improve its efficiency by some three times.

This excellent work is now ongoing under the rubric and umbrella of both our Clean Car Program and of course our continuing work with fuel cells.

Yes, I do understand and know that we will drag to the marketplace this technology because we're that close. And its corollary, the use of fuel cells to produce electricity is panning out. Next month sometime I will be in Santa Clara, California where these fuel cells will actually be used to generate electricity which will be going into SoCal Edison's grid and in the following month other fuel cell projects. That one's only about a 2-megawatt project.

So we are not only getting there, but this will drive the next generation of automobile. I was recently at Chrysler seeing a hybrid application of the fuel cell with high promise, and this was coming from the agents and the technologists who are moving this technology for the benefit of the entire industry.

Mr. REGULA. What makes me a bit skeptical is we've had difficulty getting natural gas vehicles into the market. Obviously it is a clean burning fuel and yet it costs more, and we don't have fueling facilities. It would seem to me that fuel cell driven cars are further into the future. We've got to go a step at a time.

ALTERNATIVE FUEL VEHICLES

Secretary O'LEARY. Well, Mr. Chairman, this provides me the opportunity to indicate to you that I think that one of the errors made last year in the budget decision was to withdraw the funding from the Department of Energy that let us provide the increment to our sister agencies for the purchase of alternate fuel vehicles, the majority approaching 70 percent of which are natural gas-powered automobiles.

Mr. REGULA. Could the President issue an Executive Order? He could order the agencies to buy a certain percentage of natural gas vehicles and not invade our budget to do so.

Secretary O'LEARY. In point of fact, we have been negotiating the language of that Executive Order with our colleagues for more months than I'd like to report. The final draft, and what I had hoped would be the language for the Executive Order, was due on someone's desk at the Department of Energy on the 16th.

Here's what these agencies had to do. These are my colleagues. They say, "If this is so important to the Nation, why didn't your committee, which has traditionally provided you as advocate of the technology and as an investor in the technology, why don't they provide you with the budget?" At a time when they are dealing with their allocations, they are trying to look back to us for leadership, and in that regard, so do I look back to you now.

Will I get an Executive Order? Yes, because my brain guards back here will ensure that it happens. But that, in my view, dealt a death-knell blow to this program. Now we go on.

And talking about being on the road, the last time I was in California, we inaugurated Los Angeles as a clean city. In my mind that was the jewel in the crown, because if you can capture Los Angeles with its commitment to alternative fuel vehicles and actually bring the business community in along with State and local government, you've got an opportunity to make a difference. We have made an inroad on the introduction of clean cars and natural gas-powered cars into the marketplace. The injection over the past three years has been about ten percent. We own about ten percent of that marketplace resulting from the funding that you have provided us.

I can also tell you that by dragging the marketplace in that way, that we now have natural gas-powered cars and vans available in the marketplace coming out of the big three automobile manufacturers. That's progress, but we ought not stop because you've got to get the cars to drive the service centers. Part of this year's budget includes—no, I'm sorry, part of last year's budget includes a few of these service centers which the Department itself is supporting.

The other thing we're doing, of course, out of the Energy Policy Act of 1992, is we've got a regulation attempting to guide the marketplace on the use of more alternate-fuel vehicles. Does everybody like it? No, everybody doesn't like it. But municipals tend to like it, and those areas where there's a clearly perceived economic benefit to be derived from putting these automobiles on the marketplace, people are getting it.

But dragging the marketplace takes money.

Mr. YATES. Will you yield for a minute?

Mr. REGULA. Yes.

Mr. YATES. Can you require the oil companies to supply filling stations, or places in their filling stations for natural gas filling?

FUELING STATIONS

Secretary O'LEARY. There's no current authority permitting the Department of Energy to do that, and the way we seem to be headed, which makes a lot more sense to me, is to let the economic signal be answered. I use that Amoco station right down here on Capitol Hill where my Department of Energy car is serviced and where my personal car is serviced because I have dual capacity. But there is a business person and a company that's already seeing the market going that way.

The negative signal we send to the Amocos of the world is now to back off that funding and have me engage in a death struggle with other agencies who have their own budget contingencies and requirements.

Mr. REGULA. Well, I think the role of the Department of Energy is to assist in developing the technology but as soon as it becomes viable in terms of the marketplace, then we need to let the market take over. If we had a lot of money, that's fine. And you sort of indicate in your statement—and I'm not sure whether this is an accurate interpretation—that you are funding some infrastructure. But, by the same token, the fact that the Amoco station has put in the facility is a way that the market is responding. And the United States Government is part of the market, therefore the Postal Service or the Defense Department or other departments now know that natural gas vehicles are viable. And therefore, through the use of an Executive Order, we, collectively, the United States Government, can participate in promoting what has been demonstrated by your Department as a viable, clean burning technique.

And in a period of limited resources, I think that the Department of Energy's role with the private sector is to develop whatever technology it might be, whether it's clean coal or natural gas vehicles, to the level where they become viable in the marketplace. But we need to stop there. We don't have the money to put up beyond that.

Secretary O'LEARY. Mr. Regula, as I've indicated to Mr. Nethercutt, I have a very hard time disagreeing with you, but I need to disagree with you in this regard. I want to do it with a lot of respect, but I need to go from my own personal experience as a business person.

We can spend years working on technology. We have to make a decision about when to stop on the technology—when it's viable or when it's cost reaches market penetration. Because the government rightfully—I mean you're talking to the person who has reduced her budget more than any other Cabinet officer, and you know you can look at anybody's measure to do so, so I understand how important it is to run a tight, stringent business. But at the same time, now having developed this technology, would we stop short of deployment? Your solution is now to remove the responsibility——

Mr. REGULA. For deployment?

Secretary O'LEARY. For deployment and have it be shared by all of the Federal agencies. So in point of fact, we've still got the government pulling the marketplace. What we've done is we've spared our budget because we have our allocation problems. I understand why there is the requirement to do so, but I will tell you that the mistake may be in taking this role away from first of all the person who understands the technology, has the passion, has the knowhow and the engagement with these broad communities.

Now you've correctly pointed out that the Amoco Station is down there because the customers exist. What we want to make sure of is that customers exist in Los Angeles, that they exist in Chicago and that they exist in Boston. Each of these, now there are some 47 clean cities—47, I've even got the number right. In order to do so, the government has to continue to inject its leadership. I fear that this Executive Order—I can't use a colloquialism although Mr. Yates is gone—will not make it. It will not get it done.

Mr. REGULA. I think that in an expanded budget that's fine. But I see the role of the Department of Energy on this R&D side to develop this to the point that it is viable in the marketplace. The cities can accomplish their goals by simply establishing clean air standards which can only be met by maybe using NGV vehicles or electric or whatever.

Secretary O'LEARY. Such was our experience in California.

Mr. REGULA. Right.

Secretary O'LEARY. Not good.

Mr. REGULA. Well, why not good?

Secretary O'LEARY. I think not good in California because simply from a political policy point of view, they withdrew the zero emission requirement in the timetable for California.

But you and I can have this debate for a very long time. It is fact—all of these expenditures will come from the American taxpayer, and where we are broken down here is whether the Department should provide that leadership or whether the leadership should be dispersed. And I know how you're going to vote.

DOE AND TECHNOLOGY

Mr. REGULA. I have to say that I think that the role of the Department is that as long as it is not clearly established that a technology, whatever it might be, is not viable, then the Department has the role to bring it to that point. But once it is demonstrated that this technology works, at that point the marketplace has to take over. Because otherwise we'll be expending assets in the marketplace side of this—and shortchange continuing research into new technologies for the future. I think we maybe have a difference of how we do this, but I don't foresee the availability of the resources to get beyond reaching marketplace viability.

Secretary O'LEARY. This would be my response to that. I'm going to move from the natural gas-powered vehicle, and I'd like to go the Integrated Gasification Combined Cycle. I'd like to go to some clean coal technology.

Mr. REGULA. Okay.

Secretary O'LEARY. I'd point out to you that at the Wabash station, owned by what used to be Indiana Power, they have a fancy new name which I don't at the moment recall.

They were engaged in building that facility because they got a collaboration with the Federal Government. The price was not right. And I'm going to go back to my own business experience at this time. What happened to Jim Rogers as he went before his board of directors, I can tell you of my own experience—not that I was there when he went to his board of directors. The questions were, "Is this going to pay off in the short-term? Is this capital investment that you are asking me to make, will this pay off in the near-term?" The answer is no. How do you expect this board of directors to move forward on this technology that looks kind of iffy? Because it's not. I can buy a cheaper power plant some place else. It won't do the marvelous things with drawing all the particulars and make use healthier. The answer is "Almost at market penetration, board of directors," and to the chief financial officer also sitting there, "But in collaboration with the Department of Energy, we can reduce this cost and we can take the risk."

Mr. REGULA. So you're saying the taxpayer should subsidize Wabash's move into the marketplace?

Secretary O'LEARY. It's not its move alone because there are three separate projects which are proving out the technology. And every vendor not just Wabash, but every vendor, every partner engaged in that activity will now have the capability to deploy this clean coal technology.

Yes, the United States should invest because over the next ten years you're going to be able to make at least a trillion dollars in a marketplace. At least clean coal technology will be about 60 percent of that marketplace, and wouldn't we have been foolish to have left behind our three partners with so many businesses to advance the entire industry.

Mr. REGULA. But do you agree that the technology has been proven?

TECHNOLOGY FOR CHINA

Secretary O'LEARY. The technology is now proven, but I will take another step forward and walk you right into China. Sixty-five percent of the energy capability in China is coal. Now I would like to deploy that IGCC in China because I now have the opportunity to deploy a lot of technology to China and create great jobs in Indiana and California and Texas, and more States than we can mention. Maybe even Ohio, sir. All I lack now is about a half million dollars to work on the deployment of that project. It would be silly not to make that investment to engage the Chinese to have them understand that this is the right technology and plant it there in China where they will bet on coal.

Mr. REGULA. Why wouldn't the corporate sector that has potential to sell all of this technology be willing to either go in on a joint venture or some other type of arrangement to accomplish that same goal?

Secretary O'LEARY. They're going to contribute about $1.5 million, the Chinese government at about $600 thousand, is my recollection, and the Department of Energy with its piece as well.

The reason you want the Department of Energy engaged is that the Chinese are newly going to privatized markets, and if we don't show up as a government, they have the tendency to believe that they can't bank on us. It's a short-term investment that will have tremendous pay offs.

Mr. REGULA. But when you go on your trips why don't you take the private-sector people?

Secretary O'LEARY. Absolutely.

Mr. REGULA. And try to get them to participate in the marketplace. That's the goal of the trip of taking the private sector, is it not?

Secretary O'LEARY. Absolutely. They want me hand-in-hand. They want me to deliver what were early commitments in that program to use funding to commercialize this technology and to have spent all of this money and to stop short of winning the market and deploying the technology—when somebody from Germany wants to do it, and somebody from Indonesia wants to do it—to me that makes no sense at all. For half a million dollars, that makes no sense.

Mr. REGULA. As you recall, this is one of the areas of differences that we had with the authorizers who are very determined that it only go to the research side and not to the deployment side.

Secretary O'LEARY. You just can't stop just before you leap over the stream.

Mr. REGULA. Well, I guess the big decision is what point you have to leap and from what point you have to stop.

Secretary O'LEARY. We're ready to leap now is my point. We're ready to go.

CLEAN COAL TECHNOLOGY

Mr. REGULA. Well, why is your request on clean coal down?

Secretary O'LEARY. Because we have proved out this technology for the research and development, and we're moving to marketplace. Many of these projects, because the public power industry is under such turmoil as it moves to retail-wheeling and price pressures, have stopped short of developing some of these technologies. But I'm talking about the technologies that are deployable today. I want the muscle to finish planting them in the international marketplace.

Mr. REGULA. I guess what you're saying is that some of this deployment you consider as still part of the development of the technology.

Secretary O'LEARY. Absolutely, sir, and again, I might bring my private-sector experience to the table.

As I was coming up here I was reading the Wall Street Journal piece on Ensure food supplements that many older people use—my mother now uses it. It's interesting because the article starts out to say that such-and-such to deploy this product.

Mr. REGULA. I've seen their ads.

Secretary O'LEARY. Fair enough. Well that's a very low-tech service—we're providing a product that costs little money.

But here we've spent billions of dollars to develop this technology, and a race for our lives with others who would prefer to compete for these markets. And someone would have us stop short of winning the markets because we don't want to assist industry.

I want to assist industry because that's what ensures the economic security of the United States and it's all about.

Mr. REGULA. Well at what point do you back out then?

Secretary O'LEARY. You back out the moment you've got the thing deployed. Deployed to me does not mean in the United States alone. It means to capture this market whose need will far exceed our own over the next two decades.

Mr. REGULA. So you're saying that the U.S. contribution—the taxpayer contribution should be for capital costs but not operating?

Secretary O'LEARY. I'm saying—we're not talking operating costs. I'm not talking about deployment.

Capital costs went to R&D. We've got the research and development proved out——

Mr. REGULA. But you're saying the deployment of capital by the private-sector, are you not?

COAL TECHNOLOGY COMPETITION

Secretary O'LEARY. Well, I'm mostly talking about—and if I'd been a little smarter, I would have used another example where we've got the whole industry involved so I'm not worried about your issue of favoring a few competitors against the many. But I will tell you this, and I'll stick with coal for a minute. If we don't favor our U.S. firms, then some other firm will put them out of business, and the next Secretary of Energy will be trying to explain to you why so many jobs have been lost in this industry—which would be a heck of a note.

Mr. REGULA. Don't you think that in terms of your numbers that it is premature to rescind further clean coal funding before you've achieved the $200 million in savings assumed in the 1995 rescission?

Secretary O'LEARY. No, I think it has to be done at this moment in order to accommodate other of our important initiatives under this budget line. And I have personally taken a scrub of all of these projects against a criteria which asks the question, "Are they sited yet?" And more importantly do they have a firm contract for purchase of power or is a utility involved who will buy the power if it is not an independent power producer.

Those projects that can be withdrawn are being withdrawn because they are not meeting the hurdle rate established by their own joint-venture partnerships.

Mr. REGULA. What's the rationale? I see energy conservation is up 33 percent. In fossil energy R&D you are down 17 percent.

Secretary O'LEARY. Exactly.

Mr. REGULA. Which says you made a policy decision that our energy policy should be weighted in favor of conservation versus fossil R&D.

Secretary O'LEARY. Absolutely not, sir. What we've looked at is the requirement for expenditures on that fossil line and that reduction of 17 percent is reflected against the withdrawal of the request for $500 million worth of the clean coal technology program. Because as I have told you today, we are clear that there are not customers for the expenditures for that money in this fiscal year.

Mr. REGULA. On fossil?

Secretary O'LEARY. In the clean coal area. If you will leap with me to Fiscal Year 1998, you will see that we are putting back, or asking to put back, more than $300,000,000 reflecting our assumption about the projects that will then be ready for further development.

These facts are occasioned not by decisions that we have made, but by decisions that the partners have made as they look at the marketplace and their ability to both finance and their need for power against this very volatile marketplace that is, quite frankly looking to purchase cheaper power someplace else.

So I didn't do that. The marketplace that we love and love so well has done that. And we have a clear——

Mr. REGULA. When you're saying 1998, you'll come back in and reduce conservation and go back up on clean coal?

Secretary O'LEARY. Well it's clear that we're going to have to reduce something, isn't it, Mr. Chairman? [Laughter.]

HOME ENERGY RATING SYSTEM

Mr. REGULA. You have a proposed home energy rating system. I have this little chart here. It shows the annual energy cost of comparable gas and electric houses. If it's electric, it is $19.95; if it's gas, it's $16.95. But the gas house gets three stars, and the electric house gets four stars. I haven't figured that one out.

Secretary O'LEARY. It doesn't make much sense to me either, Mr. Chairman.

Let me tell you where we are on this. We are in agreement. I am not by any means wanting to deprecate the excellent people who have been involved in a very long-term negotiation to develop this effort. I became aware of the apparent mis-application of some rating of these two energy sources three days ago. If I had had my hand in it—and it's not my job to have my hand in everything—this would not have occurred.

But let me tell you how it occurred. It occurred in a negotiation with many people at the table attempting to try and decide how you rate the value of energy efficiency. The issue was whether you measure the energy consumption from its site or its source.

If I had been at the table as a person who has worked for a diversified group of energy providers, I would have perhaps been much more interested in forcing the look from the source directly to the marketplace.

We are at the point of a proposed regulation or rule. I will see that this is adjusted. Your point is well made. This makes no sense at all. We like to make sense.

Mr. REGULA. Well I think that this makes a case that you get into somewhat dangerous ground when you start making judgments on the relative efficacy of various energy and technologies. It seems to me that the Energy Department might provide information on what an RU35 does in insallation for example so that the building industry could make a judgment as to that value.

But I think that when you start getting into establishing rating systems perhaps you are invading the marketplace. People should be able to make their own judgments.

Secretary O'LEARY. Well, let me say this, Chairman Regula, your point is well taken, and you and I agree with one another on the outcome. On the process, I don't disagree with you.

People who came to the table were, in fact, the business community—what happened to the natural gas industry is, quite frankly, that they didn't bring enough people to the table.

I will correct that. I personally own this now. I will correct this.

APPLIANCE STANDARD

Mr. REGULA. But we have the same thing on the appliance standards. I'm not sure that government should be a player and a referee. I think that maybe the role would be to say that here's useful information for you, Mr. and Mrs. Consumer, but you'll have to decide what fits your needs.

I have the same problem in Transportation where they want to rate tires. We should let companies develop their own base of information, and they can post it on the side of the refrigerator or the building or, whatever best serves you Mr. and Mrs. Consumer.

But why should government get into the role of being judge and jury?

Secretary O'LEARY. Well, I think, first of all, you over-ascribe government's abilities and authorities in this regard.

I am a tennis player, and I want to tell you that, at least in my opinion, I have just gotten the shoulder high tennis ball off the net, although you have not agreed with the outcome.

But I have been involved in these appliance programs since 1974, I want to say. So I was there at the beginning, and it would appear that I may be there at the end. I need to outline these things to you.

In looking at energy consumption in the envelope called the house, these appliances are, of course, among the largest energy consumers. The differences between the arcane way that these standards were set back in the old days, when I was still in my early 30's, and today, is dramatic, first of all the technology is better. Let us use the much maligned refrigerator rule which is ready to go. It was the result of a negotiation with the industry itself trying to come up with some details and guidance that the industry thought made sense and were technically correct and were not cost-burdens on the industry.

It occurs to me that that is the appropriate role of government. Working with industry to make the determination about how we accomplish our goals, again, to reduce these energy costs to save us from the next impact. I am fraught with despair that these efforts, now that we finally have them so moderated working hand-in-glove with the industry, are about to be thrown out when the rest of the world—and I'm talking about Asia, and I'm talking about Latin America where 50 percent of the population growth and therefore energy consumption will occur over the next 20 to 30 years—look at us as people who have set the model for reduction of energy consumption where it needs to happen or else we're going to have a terrible time in meeting the environmental burden of this growth.

Mr. YATES. I'm on her side. You explained that very well.

Mr. REGULA. It's some difference in faith in the marketplace.

Mr. YATES. Well, that's a good marketing device that she's talking about. She's talking about things that will help industry.

Oh, are you going?

Mr. REGULA. Just temporarily, Mr. Yates. So, I will yield to you.

SALE OF THE NAVAL PETROLEUM RESERVES

Mr. YATES. I want to go back to the sale of the reserves and invite your attention to Inside Energy on October 16, 1995.

Secretary O'LEARY. Who has one of those?

Mr. YATES. Do you have the wrong people here? [Laughter.]

Secretary O'LEARY. I'm looking for a copy of "Inside Energy," but I'm okay to have you read to me, sir.

Mr. YATES. I will. I'll read to you with feeling.

Secretary O'LEARY. Thank you, sir.

Mr. YATES. This says CBO estimates the sale of naval reserves to have cost nearly $2.6 billion. That's costing the Federal Government. Presumably this is supposed to be a profitable deal for us. And any way that you look at it, I think that the taxpayers are going to get a bad deal.

Let me read further. "The Congressional Budget Office has estimated that sale of DOE's naval petroleum reserves in four States would provide the government with revenues of $1.55 billion by Fiscal Year 1997 but would cost taxpayers nearly $2.6 billion in foregone revenue and expenses associated with the sale over a five year period ending in Fiscal Year 2002." So, do you have any comment on that?

Secretary O'LEARY. Yes, sir. I remember the name of the firm that is going to assess the remaining properties beyond Elk Hills. It's Gustavson and Associates.

They were to come back with a number that I hope that we can all agree upon because it's interesting to recall that when I came back to the Department of Energy, the first series of discussions that you and I had were of course over the concept of the Naval Petroleum Reserve.

Mr. YATES. And I remember very well you telling us at that time that if we don't sell the reserves we ought to go into alternative position to use that, to lease them out and make some money from them.

Secretary O'LEARY. And fair enough. Mr. Yates, I was very careful to say to you that the examination that would occur with the remaining properties would be one of, assessing their value, but also making a determination about disposition. I was careful to use that word, "disposition."

Mr. YATES. Okay, we'll check the record to see whether you used it.

Secretary O'LEARY. Yes, sir. I certainly have used it twice in the last two sentences.

Mr. YATES. Apparently, the reserves were authorized to be sold in the 1996 Defense Authorization Act.

Now, according to the CBO letter, a copy of which was obtained by Inside Energy, the sale of the reserves would yield about $1.55 billion in non routine asset sale receipts of which $1.5 billion would be collected from Elk Hills. And the remainder of the reserves in Colorado, Wyoming and Utah—it doesn't leave very much money for the sale of those three, does it?

Secretary O'LEARY. I wouldn't take my mark on the sale of these assets from that source——

Mr. YATES. From the CBO?

Secretary O'LEARY. Because they are not in the business of assessing the sale of land on which you've got commodities to recoup monies. I wouldn't do it.

Mr. YATES. I have the impression that there has been rather a struggle between the White House and the Congress over whether CBO's figures are the best figures available, and I think the White House, which originally was opposed to that, came to the conclusion that they were.

Secretary O'LEARY. But, Mr. Yates, we are here talking about a very discrete, different and very stylized requirement for which it takes special expertise, and I don't believe that the Congressional Budget Office has it.

Mr. YATES. But you have no choice now. You've got to sell it. The act requires you to sell it.

I don't know—we'd make $450 million gross from the properties now. Expenses are $150 million, and your net is $300 million that comes to the taxpayer. Those figures are correct.

Secretary O'LEARY. But we don't understand if, those figures are correct? Yes, absolutely.

But we don't yet know what the value of the property is. We're down the slippery slope, though, Mr. Yates. You've already pointed that out.

SALE OF ASSETS

Mr. YATES. I know that. You're down the slippery slope.

I remember, oh, maybe 40 years ago, when I was chairman of the small business subcommittee that was considering the sale at that time of the government rubber-producing facilities. And the experts came in with a certain figure, and I came before Chairman Carl Vincent's committee and testified and showed that that figure capitalized would cost taxpayers $2 or $3 or $4 billion. And Chairman Vincent, who wanted the sale, turned to the guy who was the expert who was selling it for that price, and said, "I wish you would get Mr. Yates' figure and come back to report with it."

He said, when he came back to report, he said they were accurate. And so the bill came to the floor, and I argued that, and one of the gentleman of the House turned to me and said, "You know, even if your figures are right, do you favor socialism?" [Laughter.]

And I'm afraid that you're going to have the same thing happening this time, you know. The only argument is not going to be on profits on the effect of the taxpayers money but rather on the question of whether it's going to be socialism if the taxpayers are permitted to make a buck or two.

At any rate, I continue to read from this newsletter. "According to the charts contained in the letter, sale would cost the government $2.47 billion in lost oil sale receipts between 1997 and 2002."

Incidentally, I think that the bill requires that once you agree on the sale, all receipts after that time go right to the oil companies even though the sale hasn't been perfected. That's also in this letter. And I think that's another example—well let me read it to you.

Secretary O'LEARY. Oh, I wouldn't take as gospel everything in that pink sheet, sir.

Mr. YATES. Nothing from gospel—and I forget the next line.

"Once the sale is complete," now they are quoting something, "the government would forego the offsetting receipts that otherwise would have been collected from the production and sale of oil, gas, and related products from the reserve assuming the sale would be completed during the first quarter of Fiscal Year 1997. We estimate the loss to receipts from the NPR would begin by the second quarter of the Fiscal Year. The losses would reach $470 million in Fiscal Year 1998 and declining gradually through—"

Now the thing that troubles me is that you're required to act so fast in conducting the sales. You've got experts already appointed, you say, but they have to finish the job fast and get the sales over with quickly. And I don't think—this assumes the sale could be completed during the first quarter of Fiscal Year 1997. Your experts won't be able to report by then, will they?

Secretary O'LEARY. It's 1998. No, we didn't change them. I'm telling you, sir, those papers are valuable. Those newsletters are valuable to let you know what's going on, but I wouldn't take everything reported in those papers as correct. The dates are off.

Mr. YATES. Then what do we take then? Have you prepared a paper on this that we could read?

Secretary O'LEARY. I would be delighted to provide you—yes, sir. A timeline——

Mr. YATES. And do your figures differ from these?

Secretary O'LEARY. We don't have figures yet. See, if I had them—this is one of the reasons why we are going in and getting this assessment. You never sell a property of value without getting a good, clean assessment by people who are in the business of providing that work. I would be shot if I didn't do it.

Mr. YATES. I will wait to see how you come out on this.

Secretary O'LEARY. Thank you.

[The information follows:]

TIMELINE FOR SALE OF NPR–1

The sale of NPR–1 (Elk Hills) is currently planned to occur by February 10, 1998, with revenues from the sale to occur in FY 1998, though some revenues could be realized after FY 1998, depending on the structure of a sales contract. Government receipts from NPR production will continue until completion of the sale process. Independent valuation assessments and receipt of offers are expected to occur three to six months prior to that point in time. A solicitation for offers is currently planned for mid–1997.

Mr. YATES. I must say that, based on historical precedent, I'm very fearful of what the results will be.

Mr. REGULA. Well, Mr. Chairman, you and I are in agreement on this. But I think it was your President who pushed the idea of selling it.

Mr. YATES. Well, he is your President, too.

Mr. REGULA. Well, he could be, but the sale of NPR is a done deal. [Laughter.] It was in the defense authorization. It wasn't in our bill.

Mr. YATES. We had nothing to do with it.

Mr. REGULA. We had nothing to do with it.

Mr. YATES. Mr. Chairman, we can amend the defense bill by an appropriate 13-page legislative—

Mr. REGULA. I have noticed that that has been done in the past years.

Mr. Skeen?

Mr. SKEEN. It's nice to have this debate on this side of the table rather than across the table. [Laughter.]

Secretary O'LEARY. I'm an interested spectator.

Mr. SKEEN. Thank you, Mr. Chairman.

ADVANCED COMPUTATIONAL TECHNOLOGY INITIATIVE

Let's change the subject, if you don't mind. Have we talked about the Advanced Computational Technology Initiative? The ACTI? I'd like to.

We've got a budget that includes $12 million for DOE's Advanced Computational Technology Initiative, and the Fiscal Year 1996 Interior bill eliminated this program, but the administration still supports it, and they are asking the subcommittee for reprogramming the money later this month. I think this is a vital approach to developing and enhancing and applying advanced exploration techniques and all the other technology that is helpful to the natural gas and oil producers.

Would you agree that the research in this area is producing some measurable success?

Secretary O'LEARY. Indeed, it is, and once again I am in the position of knowing some of the businesses who have reaped benefit, personal benefit. The real benefit is to the American public.

Mr. SKEEN. The public in general.

Secretary O'LEARY. Because we are producing more oil and most importantly we are putting these jobs, or holding these jobs in small and medium-sized business in the United States of America.

I believe that our reprogramming letter ought to be up here today? Next week? They are slower than I want them to be.

But we take this program very seriously, and more importantly, the large numbers of people who represent the association are small business people engaged in the exploration of oil and gas, and they indicate very strongly to us that they gain benefit in jobs retained, and most importantly, in reducing finding costs that permit them to stay in business. This is important work.

Mr. SKEEN. So this is a priority consideration?

Secretary O'LEARY. It is a priority consideration, and it is another example of taking a technology coming from the Department of Energy's national labs which was designed for another purpose and helping us solve some of our problems with respect to oil pricing.

Mr. SKEEN. Would not the private-sector oil and gas producers have any ability to come up with the research if the government doesn't provide some support and incentives to do some, or is it——

Secretary O'LEARY. This is another example that I might have used in my other discussion with the Chairman. In this regard, we know that we are dealing with very small businesses whose margin of profit, because the exploration of oil in the United States is so expensive, is so low that they cannot contemplate going a full load for the use of this technology.

Mr. SKEEN. There's no way to finance it, I gather. Because there's not that kind of a coalition.

Secretary O'LEARY. And they are not getting a free ride. It's a 50–50 share.

Mr. SKEEN. Are they paying their share?

Secretary O'LEARY. They are paying half their way.

Mr. SKEEN. That's the point I wanted to make and get it on the record.

Secretary O'LEARY. Fair enough, but they are returning valuable petroleum and natural gas to the United States.

Mr. SKEEN. But it's serving—it's also serving all the elements in the business regardless of their size of their investments, and so forth, and that information is available to them.

Secretary O'LEARY. The technology, once deployed and used, is then transferred to other small firms, and we have examples of this transfer of technology across the oil and gas industry.

Mr. SKEEN. How much of the program is funded by this committee, and how much has the administration requested in the Energy and Water Appropriations bill? Could you bring us up to date?

Secretary O'LEARY. Okay. It's $17 million in Energy and Water, and $7.416 million in this committee.

Mr. SKEEN. From this committee?

Secretary O'LEARY. Yes, sir.

Mr. SKEEN. The biggest portion of that is coming out of the administration's budget?

Secretary O'LEARY. That's correct.

Mr. SKEEN. Department of Energy?

Secretary O'LEARY. That's correct.

Mr. SKEEN. And then I gather that it is still very important. It's a Federal program that has a great deal of impact.

Secretary O'LEARY. It has a great impact. It has a great following. It's making a difference, and it's also returning income to the States as well as to the Federal Government in terms of revenues and royalties in terms of taxes paid to States as well.

Mr. SKEEN. I think it's a happy circumstance, and I think it ought to be served as a model for other considerations like that particularly in the computational, technological development areas.

Secretary O'LEARY. It's a modest amount, and it well pays for itself, I believe.

Mr. SKEEN. A big producer.

I thank you.

Secretary O'LEARY. Thank you, sir.

TRAVEL

Mr. REGULA. Do you want to comment for the record on the article in this morning's Post?

Secretary O'LEARY. I guess I do.

While I am amazed at the fixation on attempting to value projects that take five to seven years to bring to fruition. What's not reported in the paper is that the General Accounting Office itself has said that the value that the Department or other agencies bring to these trade missions extends far greater than the contracts written on that day. They went on to say that we are engaged in a business of helping nations privatize their energy markets which takes changing policy. It takes writing laws. It takes help and assistance with attracting financing which means that those laws must be transparent and understood. It takes help with those nations in acquiring the kind of financial reputation and certification that permits them to borrow money to finance projects. It is in those areas which are long-term where the greatest benefits are derived.

The business people who are with us, if they have deals, of course they want us on the ground. But in China, in India, in Pakistan, and Latin America, our efforts have been to help an entire nation move from government control to free market, and it's our expertise that is desired. The value we bring to the table is that while we are there we get to tout our technology.

But these are long-term engagements. I could use as an example, the Chinese who are in town this week in meetings with the Vice President—which my people are attending and I will later attend—that are a follow up to all the work that we did when we were in China that lead to the path of greater opportunities than what is being talked about in that article.

The energy market in China is worth $1 trillion in the next 15 years. That's what we're after, not what was written in that one trade mission.

I've been to India twice. I have been to Russia four times working on these same issues.

My counterpart in Pakistan and the Prime Minister to Pakistan came here to the United States where I did a round table with her for the financial communities seeking to help Pakistan gain its first rating so that it could float its own box.

That's the work we did. This committee has missed it entirely, but I don't think the committee wanted to get it.

Mr. REGULA. Will the benefits or the technology be beyond coal? Do you get in with these foreign countries, in advanced techniques for the burning of natural gas or petroleum?

TRAVEL ACTIVITIES

Secretary O'LEARY. We're doing gas, coal, petroleum, nuclear, demand-side management, and renewable, and we are undergirding their effort to write laws and regulations in all of those areas.

I just met yesterday with an expert in regulatory reform for the utilities sector—most of them call that thermal power—who just came back from seven days in South Africa sitting with the leadership of South Africa to write the seminal energy bill for South Africa. That is powerful stuff, and anybody who knows business understands that long-term business opportunity comes from building trust and reputation, and you do that when you bring American expertise to bear helping this tremendous revolution.

This is important, valuable work, and it has with it its national security component because what we're about is seeing that democracy catches hold in these nations. That we address our national security issues. I haven't mentioned that.

The agenda on these meetings also engages issues of non-proliferation and the supply of nuclear energy and permits us to talk about nuclear safety. In the case of Pakistan and India and other Latin American countries that I visit, permitted me to lobby in favor of the Comprehensive Test Ban Treaty and before that in favor of the Non-Proliferation Treaty.

This is powerful, important work, and if we're not doing it, we miss the opportunity to engage on a broad range of issues that move well beyond energy but for which energy is the very foundation.

Mr. REGULA. Obviously, it would seem to me that there are three benefits to the American taxpayer: to improve the global environment in terms of air quality; to help preserve the world's energy resources; and, to open the market for American products.

Secretary O'LEARY. Yes, and I would add the fourth, and that has to do with national security and has to do with global security.

Our engagement with the Russians—again I've been there four times—extends well beyond this and gets us to the issue of making nuclear material safe. Our engagement with the Russians is to secure civilian sites where fissile material is held but not under great conditions.

Our work with the Chinese will be to come to closure and finally get an agreement signed for the peaceful uses of nuclear weapons which will permit the United States to sell its nuclear technology—which, quite frankly, I would prefer than to have the Russians sell their nuclear technology to China because I believe that ours is safer.

Mr. REGULA. Yes, I have just been reading that several of the plants in the Ukraine and some of the other areas are marginal as far as safety is concerned.

SAFETY IN FORMER SOVIET STATES

Secretary O'LEARY. We're working with the Ukrainians to improve—and for all of the former Soviet states—to improve the safety of all of those early designed and unsafe nuclear power plants.

Mr. REGULA. Is there any evidence that the fallout in Chernobyl has impacted the United States in any way?

Secretary O'LEARY. No, and precious little on the technical side to tell us what has happened near Chernobyl and near Kiev generally. I suspect it will be some time before we know that, before we have the capability to monitor and understand.

Mr. SKEEN. Mr. Chairman, there have been several series of programs—utilities programs that study the after effects of Chernobyl. Have we come to any conclusions or are we doing anything?

Secretary O'LEARY. The Department is part of a very important technical team which has worked with them and will continue to work with the government of the Ukraine to make safe the structure there where we have one power plant down.

Interestingly enough, I just asked Dr. Terry Lash to give me his estimate of what it would cost to stabilize the Chernobyl sarcophagus and to make it safe for the very near-term while we move forward with the close down. He tells me that he believes that that can be done for about $6 million.

We continue to work with the Ukrainians to ensure that the safety for the short-term is improved. But you need to know that the other committee which has oversight for our budget, Mr. Chairman, is not very pleased with our engagement with that activity. I contend that it is very important to undertake that activity.

Mr. SKEEN. For both the short- and the long-term.

Secretary O'LEARY. Absolutely, because of the impacts of the national security of the United States. We cannot have that area unstable and occasion another accident at Chernobyl. We simply cannot.

SALE OF STRATEGIC PETROLEUM RESERVE OIL

Mr. SKEEN. Thank you, Mr. Chairman.

Mr. REGULA. What's your thinking on the SPR? It is becoming a target of opportunity for those who are looking for some money, and yet when I hear your concerns this morning about national security, about the potential of growing imports, it would seem to me that maintaining SPR is the minimum that we should do.

Secretary O'LEARY. I agree with you entirely, Mr. Chairman, and speaking of the slippery slope, I'm probably down that one as well with my own colleagues and our administration especially at the Office of Management and Budget.

If I had it to do again, likely I would not have been part and party to the introduction to the idea that we would sell some SPR—I've been here for too long, some Strategic Petroleum Reserve oil to help us fund the Week's Island decommissioning and retrofit the entire system which woefully has not been careful, because in all of the years of its existence, we have not paid for its maintenance. That was a very foolish decision that we made trying to be cost effective.

Nonetheless, in order to find the funding, we proposed that we sell the Weeks Island petroleum. I wish we had not done that. I wish I had not been party to that.

I now describe that as the camel's nose under the tent. So now it's very easy as it was to try to come up with a continuing resolution to put a little more SPR oil on the block, as it were.

I was shocked and amazed to see the proposal of the SPR oil in the year 2002 for further help with reducing the budget, and have earned the displeasure of my colleagues by commenting on that proposal in language that, as I am often want to do, is extremely dramatic. So I will try today not to be dramatic.

But we have just gone through two hours of discussing how important it is to have long and short-term insurance against price disruptions occasioned by price hikes occasioned by supply disruption. This is not a sensible course to take.

What I also want to be very clear to be quoted to have said is that there is time between now and the season when we finally strike an out-year budget to find some alternative to the sale of the SPR. We would be in trouble with our international colleagues at the International Atomic Energy Agency having proposed this. And it makes no sense at all.

Mr. REGULA. Would we be in violation of our international agreements?

Secretary O'LEARY. Well, we are permitted to meet the requirements of our sharing agreement using private sector stocks and supplies. It just seems to me that having made the investment at a time when oil prices were extremely high having invested in the infrastructure, it is now not the most—I'll try not to use too dramatic language.

FUNDING PRIORITIES

Mr. REGULA. Just a couple of comments. One is, we don't know what our allocation will be. So we probably will need to get back to you for some realignment of priorities in your request. I want to work with you as we go toward markup and ensure that we make good policy decisions in terms of the energy security of this Nation. And so we will have additional discussions prior to that time.

Secondly, I hope you will urge some of your party to support the omnibus bill so we can get that issue behind us and deal with the law on the question of the money for NPR and also that as part of that you will get us some specificity on the reprogramming because that has to be part of the package.

Secretary O'LEARY. I understand.

Mr. REGULA. We obviously need to get moving forward on that program. There will be a lot of questions submitted for the record, and we would appreciate a prompt response as it will be helpful to us as we try to address these policy issues.

Secretary O'LEARY. Yes, sir.

Mr. REGULA. With that, we appreciate you and your staff being here. And the committee will be in recess until 1:30 p.m.

Secretary O'LEARY. Thank you.

Mr. SKEEN. Well done.

Secretary O'LEARY. Thank you.

[The information follows:]

ADDITIONAL COMMITTEE QUESTIONS

Question: What energy conservation programs would you eliminate if funding for energy conservation research was reduced by 10 percent below 1996?

Answer: The Department's fiscal year 1997 Interior request is lower than its 1996 request, and reflects tough choices needed to achieve a balanced budget by 2002. It is premature to consider hypothetical questions about cuts to a program such as energy efficiency that delivers so many benefits to the nation in the areas of the environment, the economy, and national security.

Question: If you would not eliminate programs, how would you spread a 10 percent reduction?

Answer: Referring again to the above question and response, we believe it is premature to consider program reductions.

Suggestions on Eliminating the Department of Energy

Question: Suggestions on eliminating the Department of Energy still abound. What compelling reasons can you give to the Committee for not eliminating the Department of Energy.

Answer: The Department of Energy is a complex organization with diverse missions and major management challenges. During the past 3 years the Department has been reinventing itself in order to develop a plan to deliver these missions better and at a lower cost to the American public. The extent of change that has already taken place surpasses anything that occurred in the previous 15 years of the Department's existence.

Specifically, we have requested $3 billion less than FY 1993 and have committed to saving an additional $14.1 billion over the next five years. We have renegotiated contracts to save billions of dollars, cleaned up more than 150 major waste sites, reduced contractor employment at our cleanup sites and refashioned our weapons program in the absence of nuclear testing.

One measure of our success is seen in our budget plans. When we assumed office in early 1993, the outgoing Administration projected that DOE's budget would steadily grow to $21.2 billion by fiscal 1997. In sharp contrast, this administration has created a plan that will cut DOE's budget to $15.9 billion in fiscal 1997. The net savings to the American public between the Bush Administration's budget projections and our spending plans between fiscal 1994 and fiscal 1997 equals $12 billion. These cuts do not just happen. They are the direct result of the leadership, intense management focus, and historic reform efforts underway throughout the Department.

It does not make sense to transfer the Department's nuclear weapons programs or the environmental management program, which manages some of the most hazardous environmental problems in the world, to the Department of Defense. A new agency undertaking these programs would receive the same physical, technological, and legal constraints. The only difference is that the Department of Defense would be at the bottom of the learning curve in terms of managing these constraints while trying to achieve progress in the field. The result: cost growth, delays, and increased risks to human health and the environment.

The Department's commitment and support for basic research, applied energy R&D and the national laboratories cannot be abandoned and off-loaded to the private sector. In reality, the private sector would not be able to pick up the tab and the result would be an historic, unilateral forfeiture of human and physical assets that have played a major role in establishing U.S. preeminence in science and technology. Concerning R&D, abdication of a federal role would be extremely short-sighted given the overwhelming strategic and economic importance of energy to our nation's future.

Finally, abolishing the DOE and transferring it's vital national missions successfully to other agencies will not be able to save a significant amount of money. The GAO and CBO concluded that DOE dismantlement might save at most a few million dollars a year. And, newly elected officials who were once calling for the immediate dismantlement of the Department have come to learn more about the scope and complexity of our missions and that the fundamental reality is that abolishment of the department will not save much, if any, money.

Question: If funding for the non-Defense programs of the Department of Energy continues to decline, at what point does it no longer make sense to maintain Energy as a separate Department?

Answer: While it is logical to expect that some elements of the Department's mission will be altered over time or terminated in response to changing national requirements, there is a consistent need for the Department of Energy to advance the nation's science and technology and provide for a more secure and sustainable energy future.

The nation remains vulnerable to energy supply disruptions—the Energy Information Administration predicts that the United States will be importing nearly 60 percent of its oil within a decade and that the Persian Gulf's share of the world oil market during that time may surpass 67 percent. Our trade deficit in oil could double to $100 billion by that time. Rapid development in Asia and other regions is expected to increase global energy demand by 40 percent over the next 15 years. Global demand for power technology could create a $1 trillion export market by 2015. These and other estimates point to the continuing need for a cabinet-level agency to provide domestic and international leadership to advance clean and affordable energy supplies and energy productivity. The governments of Japan and Germany, among others, have recognized similar needs by increasing cooperative efforts with their private companies to develop competitive energy technologies.

A panel of independent energy experts under the leadership of Daniel Yergin last year found that private sector energy R&D is being scaled back and is shifting away from research with long- and mid-term goals. Despite benefits to their competitiveness in the long term, U.S. businesses are increasingly reluctant to perform energy research where profits are unlikely to be realized in the short term. The Yergin panel warned that further reductions in energy R&D threaten the adequacy of the nation's energy supplies and its environmental quality and recommended that the Department not reduce funding that directly supports the work of scientists conducting energy research.

The nation looks to the Department of Energy's fundamental research at the national laboratories in the areas of basic energy sciences, biotechnology, high energy and nuclear physics, fusion, and information technology to provide the knowledge and capabilities that underlie the nation's scientific excellence. Our fundamental research is also contributing to increasing technological sophistication in environmental cleanup, national security, and energy productivity. The synergy of these activities is yet another benefit of maintaining an integrated Department of Energy.

ENERGY CONSERVATION

Question: What are your top 3 or 4 priorities in the area of energy conservation?

Answer: Our priorities include, in no particular order, developing and deploying advanced transportation technologies to keep the nation's gasoline bill low, and reduce dependence on Persian Gulf oil, thereby minimizing the likelihood of future price shocks; developing and deploying advanced industrial technologies to prevent pollution; developing and deploying advanced building technologies to capture the tremendous cost-effective economic savings possible in commercial and residential buildings, including low-income homes; and reducing the federal deficit through federal energy management.

PARTNERSHIP FOR A NEW GENERATION OF VEHICLES

Question: You have a major initiative called the Partnership for a New Generation of Vehicles. Please explain what you are doing in this program.

Answer: The PNGV is a partnership between the Federal government and the U.S. Council for Automotive Research (USCAR)--a consortium of Chrysler, Ford, and General Motors. The objective of the partnership is to develop technologies for a new generation of vehicles with dramatically improved fuel efficiency. Achieving the objective is linked with three interrelated goals: improved manufacturing, implementation of innovative technologies in conventional vehicles, and development of production-prototype automobiles incorporating breakthrough technologies that allow operation with up to three times the fuel efficiency (80 mpg) of today's six-passenger automobiles while maintaining all other key attributes, including emissions control, safety, performance, and cost. PNGV's schedule targets the year 2004 for completion of the first production prototypes.

Question: To what extent is the PNGV program more important than continuing other ongoing energy conservation programs?

Answer: The PNGV program is of high priority because of its potential for reducing America's gasoline bill and our dependence on Persian Gulf oil, thereby minimizing the likelihood of future oil price shocks. It is neither less important nor more important than other ongoing energy efficiency investments, many of which contribute to the same goal and support other key goals, such as preventing pollution and lowering the nation's energy costs.

Question: Should we fund PNGV and get rid of the other transportation conservation programs?

Answer: No. Other transportation efficiency programs are also essential for achieving the goals of reducing America's gasoline bill and reducing our dependence on Persian Gulf oil. The work on engines and advanced materials for heavy duty vehicles targets an important segment of transportation with significant energy and environmental impact that PNGV does not cover. The work on electric batteries is crucial if we are to achieve improvements in performance and cost needed to make electric cars a viable option. And the work on alternative fuel vehicle development and deployment is necessary to help get such vehicles on the road and address the infrastructure issues that are so crucial for making all of our transportation R&D efforts a success, including PNGV.

Question: Is PNGV more important than the weatherization assistance program? Please explain.

Answer: Both PNGV and the weatherization assistance program provide important national benefits that would not occur if not for the federal investment. On the one hand, PNGV is essential for reducing America's gasoline bill and our dependence on Persian Gulf oil, thereby minimizing the likelihood of future oil price shocks. On the other hand, the weatherization assistance program is needed to capture the huge energy savings available in low-income households, who spend on average 14% of their income on energy, yet do not have the money needed to make cost-effective efficiency retrofits. The weatherization program is also one of the only federal programs that helps cost-effectively reduce the use of home heating oil. Increased demand for home heating oil during this past harsh winter is one of the factors usually credited as contributing to the recent rise in gasoline prices.

STANDARDS MORATORIUM

Question: What are you doing to work with all interested parties to resolve the issues which led to the moratorium on appliance standards in fiscal year 1996?

Answer: Since the National Performance Review's recommendations on Regulatory Reform were issued over two years ago, the Department of Energy has forged new ways of carrying out its rulemaking responsibilities. The Department has solicited interest group participation in the early stages of rule proposals and has encouraged consensus based alternatives. Based upon public comment to proposed rules, the Department has revised or dropped proposed rules which have been of questionable merit. As a result, the Department has undertaken a comprehensive review of the appliance energy efficiency standards in conjunction will all interested parties. This review has been accelerated by a number of issues which resulted in a moratorium.

The Department has moved out aggressively in reviewing the standards program. To further understand the issues leading to the moratorium, DOE initiated in-depth interviews with a representative sample of interested stakeholders which were conducted by a private sector consultant. Over thirty individuals, with extensive experience in the standards process, were interviewed. Several detailed workshops also were held with other stakeholders to pinpoint, discuss and examine contentious issues. Building upon this input, the Department has incorporated these initiatives into a draft appliance standards process improvement plan which includes: more opportunities for early involvement of stakeholders; increased predictability of the rulemaking timetable; increased use of private sector industry expertise; early elimination of impractical or problematic design options; improved analytical methods; and, strong support for consensus rulemaking.

The plan will be finalized in June 1996 after the Department has received comments from the public. Work already has begun to put in place the improvements including a workshop to review the manufacturing impact methodology scheduled for May 20, 1996 and a workshop to discuss Department product priorities tentatively scheduled for June 14, 1996.

The Department strongly opposes any extension of the moratorium on the updating of appliance efficiency standards. A further extension would cost consumers hundreds of millions of dollars in additional energy costs, result in the emission of millions of tons of carbon, nitrous oxides and other air pollutants, and waste large quantities of domestic and imported energy resources. For example, the Department estimates that updated refrigerator standards (issued in fiscal year 1997) could save the nation more than $650 million annually in 2005. These same standards will reduce emissions of carbon dioxide by 7.7 million tons and nitrous oxides by 20 thousand tons and will eliminate the need to control 25 thousand tons of sulfur dioxide.

The Department has acted to resolve major concerns raised by manufacturers regarding previously proposed efficiency standards in the following manner:

For Ballasts: The Department has redone the analysis of the benefits and costs of alternative standard levels in close cooperation with ballast manufacturers. In March 1996, DOE distributed the revised analysis to manufacturers and others for technical review. The draft report will be discussed in a public workshop on June 20, 1996. As part of this review, the Department also will examine the possible impacts of non-regulatory alternatives to encourage the use of more-efficient ballasts.

For Clothes Washers: The Department, in cooperation with manufacturers, has been preparing a draft engineering analysis of the cost and efficiency improvement potential of clothes washers. The draft analysis will be completed shortly and will be distributed to industry and others for technical review. A workshop to examine the draft report will follow soon after its release. As part of this workshop, DOE also will examine the possible impacts of non-regulatory alternatives to encourage the use of more-efficient clothes washers.

For Refrigerators: In late 1994, manufacturers, energy efficiency advocates, states and utilities announced a negotiated agreement for new efficiency standards for refrigerators. In July 1995, the Department proposed standards based closely on the negotiated agreement. Later in 1995, several of the major manufacturers announced that they no longer favored the agreement negotiated just one year earlier. Proponents of the original agreement, including at least one major manufacturer, have urged the Department to issue the negotiated standards as a final rule.

While the Department believes that many of the concerns recently raised by manufacturers were addressed during the negotiating process, there may be legitimate grounds for modifying the original agreement. The Department continues to encourage manufacturers and other groups to reopen negotiations with the objective of quickly reaching a new agreement. Further delay could have a negative impact on manufacturers meeting both the revised DOE energy efficiency standards and the Environmental Protection Agency's Clean Air Act standards on the use of HCFCs which go into effect in the year 2003. Furthermore, updated refrigerator standards would provide major energy, consumer and environmental benefits. DOE supports issuing the final rule as quickly as possible.

For Water Heaters: In January 1995, the Department withdrew its 1994 proposed rule standards for electric water heaters. Based on the review of public comments, DOE will redo the analysis and repropose updated standards for water heaters. Before issuing a revised proposal for water heaters, DOE will directly involve stakeholders in the reanalysis of water heater standards. The analysis also will give increased weight to consumers impacts that were stressed previously in the public comments.

For Room Air Conditioners and Kitchen Ranges and Ovens: After issuing the proposed rule for these products, the Department received numerous comments on the likely impacts of the proposed rule. Since then, the Department has worked with manufacturers and other technical experts to revise the analyses and has circulated it among the stakeholders for review. If the analyses is well received, the Department will issue final updated standards for these products as soon as the moratorium is lifted.

For Televisions: The Department withdrew its proposal to establish efficiency standards for televisions in June 1995 and announced it did not believe television standards warranted further consideration.

The Department is adopting, after extensive consultations with manufacturers and other interested parties, an improved process for the development of future appliance standards. The process will avoid the recurrence of problems similar to those that surfaced in 1994 and 1995 by ensuring:

Early involvement of stakeholders - The Department will encourage early and regular participation of stakeholders in setting priorities and in structuring necessary analysis.

Increased predictability of the rulemaking timetable - At least annually, the Department will review, in consultation with interested parties, its priorities and schedules for all standards development and related activities. The results of this priority-setting process will be reviewed in a public workshop and ultimately published.

Increased use of industry expertise - The Department will use stakeholders and private sector technical experts to review its analyses of the likely impacts, costs and benefits of alternative standard levels.

Early elimination of impractical or problematic design options - The Department only will consider design options that are practicable to manufacture and service and that do not affect the utility of a product. Designs which are impractical or problematic will be rejected early in the process.

Enhanced analysis of impacts - The Department will broader the scope of its analysis to consider the variability of impacts on different groups of manufacturers and consumers.

Improved analytical methods - The Department will expand and improve its analysis of the impacts on manufacturers to consider industry net present cash flow as well as competitiveness and employment impacts, and will improve other key analysis methods.

Support of consensus rulemaking - DOE will encourage and support efforts by representative groups of stakeholders to reach negotiated agreements on updated efficiency standards.

Consideration of alternatives to standards - Before updating efficiency standards, the Department will consider whether non-regulatory alternatives could achieve comparable benefits.

A full description of the new process, together with an explanation of how it was developed, is contained in an interim draft report, *"Results of the Appliance Rulemaking Process Improvement Effort,"* which is now being reviewed by the program's stakeholders. The Department will finalize the report and continue to implement its recommendations throughout the summer.

The Department also is forming an Advisory Committee on Appliance Efficiency Standards to review annually the implementation of the improved process as well as the progress being made on updating appliance efficiency standards. The Committee will be composed of interested stakeholders and chaired by the Assistant Secretary for Energy Efficiency and Renewable Energy.

Soon after October 1, 1996, the Department plans to issue final standards for refrigerators, room air conditioners, ranges, direct heating equipment and pool heaters all of which have benefited from the appliance standards process improvement initiative. The Department of Energy believes that the impacts on manufacturers of these standards (as modified) will be modest, and that they will result in major energy, consumer and environmental benefits. None of these standards will alter the utility of these products to consumers. The Department also would begin development of updated standards for other high priority products including central air conditioners and home laundry products.

Question: What compelling arguments can you give the committee for discontinuing the moratorium in fiscal year 1997?

Answer: First, the Department believes that the moratorium should not be extended because it has acted to resolve the specific product related concerns raised by manufacturers in response to earlier proposed rulemakings as referred to earlier in this document.

Second, the Department has initiated, after extensive consultations with manufacturers and other stakeholders, an improved process for the development of appliance standards. This new process is designed to ensure that the types of problems identified in earlier rulemakings do not occur in future rulemakings. The Department has incorporated these initiatives into an improved process which includes: more opportunities for early involvement of stakeholders; increased predictability of the rulemaking timetable; increased use of private sector industry expertise; early elimination of impractical or problematic design options; improved analytical methods; and, strong support for consensus rulemaking.

Third, the Department is forming an Advisory Committee on Appliance Efficiency Standards composed of interested stakeholders and chaired by the Assistant Secretary for Energy Efficiency and Renewable Energy. This Committee will meet twice a year to review the status of the process improvement and progress on appliance rulemakings.

Fourth, extension of the moratorium for another year will have a tremendous impact on benefits for the nation. With every year lost in updating existing efficiency standards, there is a loss of hundreds of millions of dollars in consumer savings, millions of tons of additional emissions of carbon, nitrous oxides and other pollutants, and unnecessary consumption of domestic and imported energy resources. For example, the Department estimates that updated refrigerator standards (issued in fiscal year 1997) could save the nation more than $650 million annually in 2005.

Finally, the Department will be ready to issue final standards for refrigerators, room air conditioners and kitchen ranges and ovens during fiscal year 1997. DOE also will begin to develop updated standards for other high priority products such as central air conditioners and home laundry products. All of these products will have benefited from the institutionalization of the Department of Energy's process improvement initiative.

Fossil Energy Research and Development

Question: Why does the fossil energy research budget cut coal research more drastically than petroleum and natural gas research? Coal research is targeted for a 15% decrease in the budget request while natural gas research declines by only 4% and oil research is cut by only 8%.

Answer: Our FY 1997 Fossil Energy budget request is based on the economic necessity of all fossil fuels to our economy and the economies of virtually every country around the globe.

Our FY 1997 budget reflects the Administration's continued commitment to ensuring the full benefits of fossil fuels - through R&D, completion of the Clean Coal Technology (CCT) Program, a fully capable Strategic Petroleum Reserve, and continued stewardship of the taxpayer's interests in the Naval Petroleum Reserves - while also reducing the Federal budget.

We also emphasized developing a balanced R&D portfolio of programs that included both fossil resource recovery and processing R&D as well as fossil fuel utilization R&D. When you break out the program that way, about 1/3 of the FY 1997 budget request is dedicated to fossil resource investments and about 2/3 is on the utilization side. Coal R&D is focussed primarily on the utilization aspects, while gas and oil R&D are mostly in the former category.

The FY 1997 budget reflects a strong commitment to all of our fossil resources -- Coal, Gas, & Oil. While the percent reduction in Coal R&D is larger than for Gas or Oil R&D, the overall commitment to coal (when you include clean coal program funding) is larger than that for Gas and Oil R&D combined.

Different Treatment for Fossil Research vs. Energy Conservation

Question: Why is fossil energy research and development a lower priority for the Department than energy conservation research?

Answer It isn't. The Department has structured a portfolio of research and development programs, all of which are necessary if the U.S. is to make maximum and most efficient use of its domestic energy resources. Within the Fossil Energy program, the program to develop cleaner and more efficient means for using our Nation's abundant coal supplies has benefitted greatly from the Clean Coal Technology demonstration program. Even with the Administration's proposed rescission, this program entails a Government investment of more than $2 billion over the past 10 years -- a substantial commitment to the future of coal technology in this country and for U.S. marketing opportunities overseas. Also, the Administration has consistently endorsed healthy budgets for natural gas and oil technologies, recognizing that many of these technologies are less capital-intensive than major coal projects and therefore, direct budgetary comparisons often don't convey the full scope of these important programs .

Also, it should be emphasized that many aspects of the energy conservation programs are companion efforts to those underway in the fossil energy research program. For example, within the energy conservation budget request, $74 million would be used for programs that make more efficient and effective use of clean, domestic natural gas. A portion of funding within the transportation program would be used for developing improved fuel cells, while the "Industries of the Future" program will benefit the oil refining industry among other major energy-intensive industries.

DIFFERENT TREATMENT FOR FOSSIL RESEARCH VS. ENERGY CONSERVATION

Question: The fossil energy research budget request makes the tough choices asked for by the Committee and further reduces funding by 10% in fiscal year 1997. Why was the Committee's direction followed for fossil energy research and development and ignored for the energy conservation budget?

Answer: The Department's fiscal year 1997 Interior request is lower than its 1996 request, and reflects tough choices needed to achieve a balanced budget by 2002. The Administration believes that even in an era of constrained budgets, investments that cost-effectively improve the environment, reduce the nation's gasoline bill, lower overall energy costs, reduce the federal deficit, and sustain U.S. science and technology leadership, need to be increased if Americans are to sustain a steadily rising prosperity. We are balancing the budget because of our obligation to future generations. We are also investing in energy efficiency because of our obligation to future generations.

Naval Petroleum and Oil Shale Reserves

Question: Explain the legal opinion on which you based your decision to proceed with funding the NPR sale without the approval of the Appropriations Committee.

Answer: The availability of existing appropriations to begin complying with the express mandates contained in the 1996 Defense Authorization Act was carefully analyzed in the attached memorandum. This analysis concluded that unexpended balances of appropriations made for naval petroleum and oil shale reserve activities were legally available to begin to carry out the specific mandates regarding the Naval Petroleum Reserves contained in the 1996 Defense Authorization Act, including Elk Hills divestiture, and that the conflicting limitations previously imposed by section 501 of the 1989 Dire Emergency Supplemental Appropriations Act were repealed by implication when the 1996 Defense Authorization Act became law because the restrictions of section 501 were irreconcilable with several of the specific commands made by the 1996 law.

Question: When do you expect to complete the NPR sale?

Answer: The sale of NPR-1 (Elk Hills) is expected to be completed by February 10, 1998.

Question: What are the revenue assumptions associated with the sale and when do you expect to receive those revenues?

Answer: While there have been a range of rough estimates of NPR sale revenues developed in recent years, the most credible estimate will be provided by the sales process currently being implemented. This estimate will be available by mid-to-late 1997. Revenues from the sale are currently expected to occur in 1998; however, total revenues received could be spread over a few years, depending on the form of a sale contract

Department of Energy
Washington, DC 20585

March 14, 1996

NOTE FOR: Mary H. Egger
Assistant General Counsel
for Procurement and
Financial Assistance

FROM: Deputy General Counsel

SUBJECT: Availability of Appropriations for
Elk Hills Sale Activities

Your note of February 6, 1996 sought my advice on the question whether otherwise available balances from appropriations made for the conduct of Naval Petroleum Reserves activities prior to the President's approval of the National Defense Authorization Act for Fiscal Year 1996, Pub. L. No. 104-106, 110 Stat. 86 (1996), are available to carry out the Elk Hills divestiture activities required of the Department by Title XXXIV of that act. For the reasons described below, I conclude that such appropriations are available for these Elk Hills divestiture activities.

The 1996 Defense Authorization Act

Section 3412 of the Defense Authorization Act requires the Secretary, "not later than two years after the [act's] effective date," to "enter into one or more contracts for the sale of * * * Naval Petroleum Reserve Numbered 1," the less-colloquial name for Elk Hills. Succeeding passages of the act specify in detail the procedures and techniques the Secretary is to employ toward the sale objective, and specify times by which the intervening steps must occur. E.g., secs. 3412(c) & (d) (publication of notice of intent to sell within two months and retention of experts within seven months); sec. 3412(b) (solicitation of offers within 13 months and identification of the highest responsible offer within 18 months).

The Defense Authorization Act does not explicitly amend Chapter 641 of Title 10, United States Code, the positive law governing management of the Naval Petroleum Reserves. As to the "sale of [Elk Hills]," however, "Chapter 641 of title 10, United States Code, shall not apply." Defense Authorization Act, sec. 3412(a). Thus the divestiture provisions are an overlay on Chapter 641 explicitly specifying (in considerable detail) the Secretary's required conduct of activities related to the sale of Elk Hills.

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The Prior Appropriations

Two have been examined: the Department of the Interior and Related Agencies Appropriations Act, 1995, Pub. L. No. 103-332, 108 Stat. 2499, 2525 (1994), and the Balanced Budget Downpayment Act, I, Pub. L. No. 104-99, 110 Stat. 26 (1996), the currently-effective continuing resolution that includes matters addressed in the as-yet unenacted 1996 Interior appropriation bill. The 1995 appropriation provides, as pertinent, simply:

> For necessary expenses in carrying out naval petroleum and oil shale reserve activities, $187,406,000, to remain available until expended[.]

Pub. L. No. 103-332, supra, 108 Stat. 2525.

This item neither links its objects solely to Naval Petroleum Reserve Numbered 1 at Elk Hills nor limits them to the particular provisions of Chapter 641 of Title 10. Nor is there a temporal limitation of the particular "naval petroleum * * * reserve activities" such as one might infer had the appropriation objects been described as "current" or "existing" naval petroleum reserve activities, or some such other formulation as "currently specified under Chapter 641 of title 10, United States Code."

The point here is that the statutory object of this lump-sum appropriation extends to all "naval petroleum and oil shale reserve activities" irrespective of whether the nature of those "activities" is altered during a fiscal year by supervening legislation that commands of the Secretary a new direction in their conduct. The fact that the supervening legislation imposes a new direction in the management of these reserves does not make the Secretary's response to it any the less a "naval petroleum and oil shale reserve activit[y]" for which the 1995 appropriation explicitly was made.[1]

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[1] As its text indicates, the 1995 appropriation "remain[s] available until expended." Therefore all unexpended and unobligated balances from it are available to carry out the Elk Hills divestiture provisions of the 1996 Defense Authorization Act, pursuant to that statute's terms. This note does not address the question whether the $7 million limitation on Elk Hills sales activities contained in the 1996 Defense Authorization Act applies to the previously-enacted appropriations examined here.

The second appropriation appears in the current continuing resolution, Pub. L. No. 104-99, 110 Stat. 26 (1996). At the outset, its objects are defined as the "authority and conditions" contained in the 1995 predecessor of the unenacted "Department of the Interior and Related Agencies Appropriations Act, 1996." Ibid. Therefore as a threshold matter the continuing resolution's objects are coextensive with those of the 1995 appropriation, and under the above analysis Elk Hills divestiture would appear plainly within them. The remaining question is whether any other provision of the continuing resolution would constrict its objects so as to exclude implementing the subsequently-enacted Elk Hills divestiture provisions of the 1996 Defense Authorization Act.

Section 103 of the continuing resolution provides:

> No appropriations or funds made available or authority granted pursuant to [the general appropriating provisions of the continuing resolution] shall be used to initiate or resume any project or activity for which appropriations, funds, or other authority were not available during the fiscal year 1995.

Pub. L. No. 104-99, 110 Stat. 27 (1996).

This is the provision that, in the informal parlance of administering appropriation acts, has the continuing resolution foreclosing so-called "new starts." Its text, however, does not quite correspond to the informal parlance here.

What section 103 actually forecloses is use of the continuing resolution's appropriation "to initiate * * * any project or activity for which appropriations * * * were not available during the fiscal year 1995." Ibid. As has been described above, the "activity" for which the 1995 appropriation was made was "carrying out naval petroleum and oil shale reserve activities." Thus the "activity" for which the continuing resolution made appropriations clearly encompasses the naval petroleum reserve "activities" that were funded by the 1995 appropriation act without any temporal or qualitative limitation that would have trumped subsequently-enacted laws mandating new initiatives within this ongoing governmental activity.[2]

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[2] A stereotype of a new start, or new "project or activity" not previously funded, would be an initiative, like building a new physics machine, within the sponsor agency's discretionary authority under permanent law but funding for which had first been proposed for inclusion in the unenacted appropriation the continuing resolution addresses. Unlike the Elk Hills divestiture mandate considered in this note,

The remaining question here is whether the 1995 appropriations, for purposes of the existing continuing resolution, "were not available during the fiscal year 1995" because of the limitation on expenditures contained in the Dire Emergency Supplemental Appropriations, etc., Act, 1989, Pub. L. No. 101-45, 103 Stat. 97, 103 (1989). In full, that limitation provides:

> Sec. 501. No funds appropriated or made available heretofore or hereafter under this or any other Act may be used by the executive branch to contract with organizations outside the Department of Energy to perform studies of the potential transfer out of Federal ownership, management or control by sale, lease, or other disposition, in whole or in part, the facilities and functions of Naval Petroleum Reserve Numbered 1 (Elk Hills), located in Kern County, California, established by Executive order of the President, dated September 2, 1912, and Naval Petroleum Reserve Numbered 3 (Teapot Dome), located in Wyoming, established by Executive order of the President, dated April 30, 1915: Provided, That the negotiation of changes to the unit plan contract with Chevron which governs operation of Elk Hills, where the purpose of the changes is to prepare for the divestiture of the Reserve, is prohibited.

The text of this provision does not expressly alter the objects of the relevant appropriations. Instead it interdicts "use[] by the executive branch" of funds that were or might be "appropriated * * * heretofore or hereafter * * * to contract with [non-Departmental personnel] to perform studies" of potential Elk Hills divestiture, together with undertaking negotiation of changes to the "unit plan contract with Chevron" for the "purpose" of preparing for divestiture. Ibid.

Despite its prospective nature,[3] section 501 does not address at all use of appropriations for selling Elk Hills; its limitations are directed to use of appropriations to commission contractor-prepared studies of potential divestiture, and conducting (seemingly irrespective of use of appropriations) negotiations with Chevron directed to revising the unit plan contract in order

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under the stereotype the Congress would not yet have legislated its approval of the proposed initiative at the time it adopted the continuing resolution.

[3] Section 501 was enacted in evident response to an opinion rendered by this office in 1989 that concluded that a predecessor limitation contained in the 1987 Interior Appropriations Act was effective only as to funds appropriated and otherwise available (from prior fiscal years) for fiscal year 1987.

"to prepare for" divestiture of Elk Hills. Therefore by its terms section 501 would not foreclose expenditures associated with conduct by Departmental and contractor personnel of divestiture activities themselves (as contrasted to "perform[ing] studies" of potential divestiture), and which do not involve negotiations with Chevron to revise the unit plan contract to prepare for divestiture. In short, section 501 for the most part does not limit use of appropriations to conduct Elk Hills divestiture activities. And its very existence as a limitation on "use[]" of appropriations necessarily implies that, in 1989, Congress viewed the statutory objects of the annual "naval petroleum and oil shale reserve activities" appropriation, without this limitation, as embracing Elk Hills divestiture planning.[4]

This is not to say that there are no conflicts between Title XXXIV of the Defense Authorization Act and section 501 of the 1989 Supplemental Appropriations Act. As has been noted above, the Defense Authorization Act requires retention of "experts" to aid the Department in carrying out that statute's provisions. It also requires "equity finalization" within eight months, an event that could not conceivably occur without "negotiation * * * with Chevron" about its entitlements under the unit plan contract, an activity explicitly within the embrace of the limitations imposed by section 501 of the 1989 Supplemental Appropriations Act. And finally the command of section 3416 of the Defense Authorization Act that the Secretary, through "an independent petroleum consultant," conduct a study that includes "[s]ale of the interest of the United States in [all] the naval petroleum reserves * * * (other than Naval Petroleum Reserve Numbered 1)" overtly is at odds with section 501's limitation on use of existing or future appropriations "to contract with organizations outside the Department of Energy to perform studies of the potential transfer out of Federal ownership * * * [of] Naval Petroleum Reserve Numbered 3 (Teapot Dome)[.]"

Thus a fair reading of section 501 has its limitations on retention of contract consultants and negotiations with Chevron conflicting with certain of the activities required explicitly of the Secretary by the 1996 Defense Authorization Act. The Defense Authorization Act did not, however, explicitly repeal section 501. Therefore the analysis here must be directed to the question whether section 501 has been repealed by implication with the enactment of Title XXXIV of the 1996 Defense Authorization Act.

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[4] The statutory objects of the 1989 and 1990 appropriations were, in relevant part, identical to the 1995 appropriation whose objects guide us here. Compare Department of the Interior and Related Agencies Appropriations Act, 1989, Pub. L. No. 100-446, 102 Stat. 1774, 1812 (1988); Id., 1990, Pub. L. No. 101-121, 103 Stat. 701, 730 (1989).

Because our first task in implementing them is to seek to harmonize the two statutes, the initial presumption is that both are to be given effect. As has been described above, giving effect to section 501 by its terms does not prevent conduct of the sale of Elk Hills that is required by the Defense Authorization Act. This is so because section 501 by its terms does not foreclose use of appropriated funds to conduct the sale of Elk Hills; instead it forecloses use of appropriated funds only for the two specified activities of conducting studies by contractors of potential divestiture and negotiating revisions of the unit plan contract with Chevron.

These features of section 501 do, however, conflict with the explicit requirements of the Defense Authorization Act that the Department retain outside experts to aid it in soliciting and considering offers from potential purchasers of Elk Hills, employ an independent consultant to conduct a study of possible divestiture of the rest of the Naval Petroleum Reserves, and finalize the equity determination (inevitably requiring negotiation with Chevron). It is simply not possible to harmonize the specific limitations imposed by section 501 with these specific commands of the Defense Authorization Act, where both the specific limitations and the later specific legislative commands are directed to the same subject matter of the Naval Petroleum Reserves.

While repeals by implication are disfavored, here there is a "clear repugnancy between the old law and the new [which] results in the former giving way * * * to the extent of the repugnancy." Georgia v. Pennsylvania R.R. Co., 324 U.S. 439, 457 (1945). Both the particular mandates and the legislative policy objectives of the two "are irreconcilable." Morton v. Mancari, 417 U.S. 535, 550 (1974). Given the two laws' respective commands, as to the matters addressed by section 501 the repugnancy seems both stark and complete, presenting "an irreconcilable conflict between the two federal statutes at issue." Matsushita Elec. Indus. Co. v. Epstein, 64 U.S.L.W. 4101, 4105 (U.S. Feb. 27, 1996) (internal quotations omitted). Therefore the Department is to be guided exclusively by the mandates contained in the Defense Authorization Act, notwithstanding the limitations hitherto imposed by section 501.[5] Because complying with those mandates involves performing activities within the statutory objects of the two appropriation acts examined here, balances from those appropriation acts currently are available for carrying out the naval petroleum reserves divestiture activities required by the 1996 Defense Authorization Act.

General Counsel Damus of the Office of Management and Budget has authorized me to state that the Office of Management and Budget concurs in this conclusion.

Eric J. Fygi

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[5] The vividness and clarity of the conflict here render unnecessary analysis of the question whether the rule disfavoring repeals by implication applies with lessened force when the claimed repeal stems from regular legislation while the prior inconsistent law was enacted "solely on an Appropriations Act." Cf., TVA v. Hill, 437 U.S. 153, 190 (1978) (rule applies with greater force when the "claimed repeal rests solely on an Appropriations Act").

Strategic Petroleum Reserve

Question: The fiscal year 1997 budget request for the Strategic Petroleum Reserve is $221,300,000. Last year we funded SPR operations by using $187 million from the SPR petroleum account and $100 million from the sale of Weeks Island oil.

There is no money in the baseline allocation for Strategic Petroleum Reserve operations because this activity was funded from other sources in 1996. Should we sell more oil to pay for SPR operations in 1997?

Answer: No. The operation of the Strategic Petroleum Reserve will continue to be an annual funding requirement, which has been obscured, in part, in recent years due to the transfer of funds from the SPR Petroleum Account for this purpose. Now that the SPR Petroleum Account is almost depleted, a precedent should not be set to finance the Reserve through annual oil sales. Continous sales will erode our ability to respond to future oil supply interruptions and send the wrong message to our allies, at a time when we are trying to encourage world oil stockpiling. The requirements of the Strategic Petroleum Reserve program should be financed through appropriations in the same manner other Department of Energy programs are funded.

Question: What reason has the Office of Management and Budget articulated for not classifying spending for this operation as part of the National security allocation?

Answer: The Strategic Petroleum Reserve was authorized by the Energy Policy and Conservation Act (EPCA) in 1975 as one element in a comprehensive program of energy management initiatives to reduce the impacts of energy supply disruptions on the U.S. economy and, through the international energy program, to reduce the impacts of energy supply disruptions on the energy consuming nations. The question of defining the Strategic Petroleum Reserve as a National Security program was resolved during the original Congressional debates to establish a Reserve by including it in the EPCA as a response measure to mitigate the economic rather than national security impacts of severe energy supply disruptions. The debates noted that the best interests of national security would be served by assuring the orderly capability of the US economy to support national security requirements rather than defining the Reserve itself as a national security program.

In reviewing this history and the SPR's place in energy emergency policy as the sole measure to respond to supply disruptions in concert with our International Energy Agency allies, it is clear that although the mission is not fundamentally a National security mission, it supports National security objectives by protecting the productive capability of the U.S. economy. Reclassifying the SPR as a National security activity could threaten the current mission by forcing direct competition between core National security objectives and the broader SPR mission to protect the capability of the U.S. economy to operate efficiently and effectively during an energy emergency caused by disruption to oil supplies.

Question: How do you respond to those who ask: "Why not sell more oil to help solve our deficit problem" (which has the added benefit of saving some of the operational costs associated with the SPR)?

Answer: We recognize that the sale of a limited amount of Strategic Petroleum Reserve oil has been necessary to preserve certain priority programs in the Federal Government that otherwise would be unaffordable However, we do not advocate continued sales of Strategic Petroleum Reserve oil. Further authorizations and proposals to sell oil from the SPR would reduce the inventory below 520 million barrels. Because of policies regarding international stockbuilding and preserving our authority to drawdown the Reserve and because this is the Nation's insurance against disruption, we oppose any further proposals for sales.

ENERGY INFORMATION ADMINISTRATION

Question: The Energy Information Administration budget was $87 million in 1994, $85 million in 1995, $72 million in 1996 and is proposed for a further decrease to $66 million in 1997. Why is the Energy Information Administration budget targeted for further cuts in fiscal year 1997?

Answer: The resources available to EIA are actually $71 million in fiscal year 1997 when fund transfers of nearly $5 million from the Department's Office of Energy Efficiency and Renewable Energy are included. Taking this transfer into consideration, EIA's funding level in fiscal year 1997 would be essentially level with fiscal year 1996. This $5 million is required to support the core EIA data and modeling activities needed to set energy efficiency program needs and measure program results.

Question: Why is it important to have Federal energy statistics?

Answer: EIA is the Nation's primary source of comprehensive energy statistics and objective energy analysis. EIA provides relevant and timely energy information to the Executive Branch, Congress, State governments, industry, and the public to facilitate informed energy decisions. Policy makers in Congress and the Executive Branch use energy data and models to make and monitor energy policy. The private sector uses EIA's data to make investment and other business decisions. Timely and accurate information is a vital ingredient for the efficient operation of energy markets; uncertainty is reduced, which leads to less market volatility. In this regard, the World Bank has been encouraging nations to establish energy data collection and dissemination organizations. Relative to the impact that energy has on the U.S. and world economies, the cost of information systems to the taxpayers is small.

Question: Why isn't this information available from other sources?

Answer: There is no comparable source for the level and breadth of energy information that EIA provides. EIA was established by Congress in 1977 to provide a centralized source of credible energy information. At the time, the debate on energy frequently focussed on what the real facts about the situation were rather than the substance of the issue. For example, EIA data were critical in the discussion to deregulate the natural gas industry and in establishing emission allowances for utilities under the Clean Air Act Amendments. The collection of timely and accurate statistical data is a core government function that is essential to the development of sound policy, knowledgeable business decisions that keep our economy strong, and public understanding. The government is in a unique position to perform this function not only because it possesses the mandatory authority which is necessary to collect much of the information, but also because it is viewed as an objective, unbiased source of information. A significant amount of data is proprietary. Company-specific information, such as petroleum reserves and supplies, is collected and aggregated for public dissemination. The private sector does not have the authority to collect data at this level and, therefore, cannot guarantee the confidentiality and equal access.

Question: What has been done to streamline EIA to achieve a 26% funding reduction since 1994?

Answer: EIA is achieving its funding reductions through improving the efficiency of operations as well as through program reductions. Federal staff is being downsized by about 20% between 1995 and 1997 in accordance with the Department's Strategic Alignment Initiative. Contract support is being reduced by about 20% between 1995 and 1997, and work is being brought in-house. Administrative and overhead costs are declining by about 15% over this period, as well. The supervisor-to-employee ratio is expected to be reduced to 1:9 or better by the end of fiscal year 1996 and to 1:15 by the end of fiscal year 1999.

The depth and scope of EIA's traditional energy program are being altered significantly through the prioritization of projects. Ten publications will be eliminated or reduced in scope, such as the elimination of the hard copy version of the *Petroleum Marketing Annual* (available electronically. Mid-term forecasting and related analysis will be reduced by 35 percent, eliminating 15 modeling projects within the National Energy Modeling System. Nine data collections in the areas of manufacturing facility fuel switching capability, electricity generation, petroleum refining and sales will be eliminated or reduced in frequency. The computer disaster recovery capability will be eliminated.

Process improvements are resulting in savings across a variety of projects and are being achieved through the application of Total Quality Management principles. Leadership training has been given to senior management. Process improvement teams have been created to review business processes and recommend improvements in areas such as training and employee development, electronic products, personal computer hardware and software acquisition, and management information systems. Surveys have been given to customers to identify ways to improve delivery of services. A review of customer service processes has occurred, such as the redesign of the petroleum electronic data collection system to make it easier for respondents to provide data to EIA and to allow for its expanded use throughout EIA. Data collection, integration, and dissemination processes are being reengineered.

International Travel

Question: What amount was spent by the Department on international travel in fiscal year 1995? How much do you project you will spend in fiscal years 1996 and 1997?

Answer: The Department does not maintain detailed accounting records that differentiate between international and domestic travel. Based upon international travel requests, and excluding international travel by Naval Reactors and the Office of the Secretary (who are handled outside of the pre-trip reporting system) and excluding all travel by the Department to Canada and Mexico, the Department estimates that Federal and contractor employees spent $28,331,000 in fiscal year 1995. The Department does not project international travel spending into the future, but does not expect any significant changes from the 1995 level.

Question: How do you determine what international travel is necessary?

Answer: The Department does not have any single office or procedure by which all international travel is measured or evaluated. Rather, each program office, operations office or contractor will evaluate the benefits of any travel, international or domestic, and weigh those benefits against the travel's estimated cost. All international travel is further reviewed by the Office of Policy.

Question: The 11th Pacific Rim Coal Conference is being held in Bangkok, Thailand on May 6 and 7. Will the Department of Energy be sending representatives to this conference?

Answer: Currently, no Department of Energy or contractor employees are scheduled to attend this conference.

Question: If so, how many people will attend and what is the total estimated cost per attendee?

Answer: No Department of Energy employees or contractors are scheduled to attend the Pacific Rim Coal Conference.

Question: How do you justify the expenditures involved with sending people to conferences such as these, especially considering the high cost?

Answer: The energy industry, and energy supplies, are truly global in nature. The recent increase in oil and gasoline prices demonstrate this. Any increase in demand, or contraction of supply, inside or outside of the United States, can have significant effects on our economy, consumers and the overall energy security of the United States. Unless the Department of Energy is involved in the international energy discussions, it cannot properly fulfill its missions to improve the energy security of the country.

Much of the international travel directly supports the Department's leading role in preventing nuclear proliferation. One of the greatest risks facing the post-cold war world is the risk of nuclear proliferation and nuclear terrorism. The Department of Energy leads the Federal government in these efforts, and preventing international nuclear proliferation necessarily involves participation in international events and meetings.

Clean Coal China Program

Question: What are you doing to work with U.S. industry to help promote clean coal technology sales in China.

Answer: The effort to promote U.S. clean coal technology sales in China consists of the following activities:

1. DOE and DOC have organized a group of 12-14 U.S. firms representing clean coal technology from applications from mine to product production to go to China in June. The group will participate in the Energex trade show, conduct seminars, meet with government officials and industry to discuss potential business opportunities and projects. Meetings are being arranged with Provincial governments to specifically discuss projects using U.S. clean coal technology.

2. Joint U.S.-Sino reports on the technology status and potential application of the technology in China are to be developed. The technologies of interest (identified by the Chinese) for these reports includes IGCC, low cost sulfur reduction systems, coal preparation and production of chemicals from coal. These reports will be a joint effort of U.S. Government experts and U.S. industry experts and their Chinese counter parts. The reports will be issued by the President of the Chinese Academy of Sciences and presented to the members of the State Council.

3. At the request of the Chinese government DOE has been providing technical support to the development of a 300-400 MW IGCC project planned for Beijing. DOE has worked with the U.S. industry participants to obtain an expression of interest from the U.S. Export/Import Bank for a $150 million loan. Through the efforts of the DOE the Asian Development Bank has decided to investigate participation in the project.

4. Office of Clean Coal Technology has received a grant from the U.S EPA to develop a U.S.-Sino Energy and Environment Center for the identification of business opportunities for U.S firms and to conduct joint technical and business education programs and to assist with the development of Chinese energy and environmental policy. The Chinese government has committed 33% of the funding for the Center.

These approaches provide a package of introduction of the technology and the vendor to the appropriate Chinese organization, followed by analysis of the application of the technology in China and a location of continued follow up activity and tracking the progress of the approval of a project.

Note: Activities 3 and 4 are under discussion with House and Senate appropriation committee staff.

Question: What funding is industry contributing to this program? How much is Federal Government.

Answer: Generally the funding for the activities is approximately one third U.S. Government, one third Industry and one third Chinese government.

Question: Why is the Federal Government involved at all; isn't it up to industry to market its own products?

Answer: This would be the approach in the U.S. However, in China as else where in the world, U.S. industry is up against a joint government and industry market effort by many nations. Also since the decision makers in China are the government, it is important to establish the government-to-government relation in support of the U.S. technology. The U.S. Clean Coal Program is respected worldwide and when dealing with a country with a centrally planned economy it would be very suspicious if the U.S. Government were not along side the U.S firm advocating the success of a particular clean coal technology.

The Chinese government views the U.S. Government as a source of objective analysis since the U.S. offers technology options in all clean coal technology areas.

Question: Why is China singled out for this "special treatment"? Aren't other countries just as much targets of opportunities for American technology?

Answer: Yes, other countries are also important and we are working with them. However, China is the largest market in the world for coal technology. China will build approximately 200 GW of coal power stations in the next 15 years, China has the largest residential use of coal and is the largest producer of chemical from coal. Its top three priorities are agriculture, energy, and transportation and all will be directly impacted by the use of coal technology. At the current rate, the U.S trade deficit with China will become the largest of all other U.S. trading partners. China needs U.S. technology, the U.S. needs exports and the world needs China to reduce its emissions and for China to use its resources efficiently.

In percentage of growth and in absolute terms, China is the largest market for coal technology and with the acquiring of foreign currency China is gaining the buying power. The proposed program for China is not really a special case but a test case for how to effectively use U.S. Government resources to promote trade and environmental performance. Lessons learned can be applied for the design and development of programs for other countries such as India, Indonesia, etc.

QUESTIONS SUBMITTED BY CHAIRMAN RALPH REGULA

GENERAL

Question: Let me first commend you for your budget's overall restraint remaining at the FY 1996 level. While we might disagree about overall priorities your Department clearly has gotten the message that increased spending for energy is not in the cards. I must however ask you about your priorities and why energy conservation would receive a nearly 33 percent increase when overall your budget is flat. What makes energy conservation such a high priority and why should we consider such an increase in spending?

Answer: Energy efficiency is a very high priority because it achieves so many crucial benefits to the nation simultaneously. Energy efficiency investments are the most cost-effective way to prevent pollution, especially in the industrial sector, and thus protect the environment. At the same time, the spike in the price of gasoline reminds us of how important petroleum is to the U.S. economy. Energy efficiency investments, especially those in the transportation sector, are the single largest federal effort to reduce the nation's gasoline bill and reduce our dependence on Persian Gulf oil, which is needed to minimize the likelihood of future oil price hikes. Finally, significant opportunities exist for dramatically reducing the nation's energy bills in the buildings sector, through developing new technology and overcoming the barriers to deploying existing energy-efficient technologies, many of which were originally developed by the Department of Energy. These opportunities exist in the commercial sector, the residential sector, especially low-income homes, and in the federal government itself, where we have already achieved significant deficit reduction, but have much further to go. Energy efficiency is a priority because it can simultaneously achieve all of these goals, while creating and sustaining U.S. leadership in a number of technologies that are likely to be a major source of jobs in the next century.

HOME ENERGY RATING SYSTEMS

Question: It is my understanding that the Department has proposed a Home Energy Rating System (HERS) that utilizes a site-based method of measuring energy consumption and cost. As I understand it this will result in a typical electric home in Baltimore that consumes more total energy than a natural gas home receiving a higher rating than the natural gas home, four stars versus three stars. Under the proposed Home Energy Rating System wouldn't the typical consumer be inclined to pick the four star house over the three star house even though the total energy cost is higher on the four star house and how can the Department justify a rating system that promotes less efficient and more costly energy choices?

Answer: The proposed guidelines were based on the recommendations of the Home Energy Rating System Council, a broad-based group, consisting of representatives from the American Gas Association, Edison Electric Institute, the National Association of Home Builders, the National Association of Realtors, the American Association of Retired People, the Alliance to Save Energy, the Mortgage Bankers Association, Fannie Mae, States and others. The Council developed these recommendations through a three-year consensus process. This was a long and difficult process with many conflicting views and contentious issues. These groups worked cooperatively and voted unanimously to forward guidelines including the use of site energy to the Department for adoption. The proposed Voluntary Guidelines will provide energy cost information that will allow comparisons of homes regardless of fuel type and star ratings that are intended to be used only for comparisons among homes of a given fuel type.

Question: As I understand it this skewed rating has to do with the issue of site-based measurement versus source-based measurement. Does the Department believe that the site-based measurement provides a more accurate accounting of energy consumption than a source-based method?

Answer: The HERS rule is designed to provide home buyers and lenders with useful information on expected energy costs. The site-based star system allows comparison among homes of the same fuel type. The energy cost information which indirectly reflects source energy efficiency is provided to facilitate comparisons between homes of different fuel types.

Question: Does anything in the law require site-based measurement or does DOE have the discretion to consider all relevant data?

Answer: Section 271 of The Energy Policy Act of 1992, which directs the Department to issue the Voluntary Guidelines, does not specifically require site energy. It states that the rating systems "not discriminate among fuel types."

Question: Would you agree that assigning a higher rating to a home that uses more energy resources and costs the consumer more to operate than a comparable natural gas home is counter to good public policy as well as the goals of the HERS program?

Answer: The scores are designed to allow comparisons between homes with the same fuel type. Energy cost information is provided to ensure that consumers have sufficient information to make comparisons across fuel types. Both types of information are needed to make an informed choice.

Question: For the record could you provide a listing of who was on the outside advisory committee that had input into this proposed guideline?

Answer: Yes. A list of the HERS Council Board and the HERS technical committee follows. The Board and the technical committee make up has changed over time. The lists cover the Board and committee which finalized, approved, and forwarded to the Department the HERS Council Guidelines and also the Board that approved comments supporting the adoption by the Department of the guidelines as proposed.

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Clean Coal

Question: Only one selected project remains not under a contractual agreement with DOE and that project involves Geneva Steel and Centerior Energy the CIPICOR project. What is the status of contract negotiations over this round five project and what is the delay in completing the contractual agreement on this project?

Answer: Negotiations on the Clean Power from Integrated Coal/Ore Reduction (CIPICOR) Demonstration Project proposed by Centerior Energy Corporation have been delayed due to a change in the proposed site from Cleveland, Ohio to Vineyard, Utah; changes in project teaming due to the withdrawal of LTV Steel Company and the addition of Geneva Steel Company; and development of organizational teaming arrangements among the team members in forming a limited liability company composed of subsidiaries of Centerior Energy Corporation, Air Products and Chemicals, Inc., and Geneva Steel Company.

Negotiation on the proposed project are now essentially complete. The Department of Energy has conducted two separate market surveys in order to determine the commercial market potential for the technology within the U.S. steel industry. The project is still being evaluated, and the Department expects to make a decision regarding award by early summer.

Question: You have proposed modest scaled back initiatives in China. Could you comment on what you see as the market for our clean coal technologies and why specifically it is important that the U.S. government make at least modest investments in these international initiatives to promote the export of these technologies?

Answer: China represents the largest market in the world for clean coal technology. China will add 200 GW of coal fired power in the next fifteen years, it is the largest use of coal for residential heating and cooking and the largest producer of chemicals from coal. Clean coal technology will have a tremendous impact on the three top priorities in China, agriculture, energy and transportation. China has the immediate need for efficient power generation, low cost pollution control, coal preparation technology, and clean fuels and chemicals from coal.

Globally, the market for clean coal technologies through 2015 is in the trillion dollar range. The Federally supported clean coal program, in partnership with U.S. industry, has established U.S. global leadership in clean coal technology -- which is critically important but not sufficient to assure the capture of a large share of that market by U.S. industry (with the accompanying payoffs of jobs creation and contributions to the GDP and balance of payments). In countries where markets are controlled or strongly influenced by their governments, U.S. Government participation can help "open doors" for U.S. industry. Some countries approach global marketing with a joint government and industry activity. In some cases, very favorable financial rates are provided by foreign governments to their industry. It is important for the U.S. Government to try to level the playing field for U.S. industry.

Question: In the near term is the market for these technologies international or is there a near term domestic market for these technologies?

Answer: Clean Coal Technologies have a near term market both domestically and internationally. The near term international market is larger than the near term domestic market, but sales are already occurring in both markets. It must be recognized that near term market entries of Clean Coal Technologies are highly dependent on the specific technology and site. Close to a billion dollars in sales of Clean Coal Technologies have occurred in the domestic U.S. and international markets with approximately $1.5 billion in sales pending. To date, most of these sales are primarily for the nearer-term retrofit technologies. In addition, $8 billion in sales of Atmospheric Fluidized Bed (AFB) technology have been reported ($6 billion in U.S. sales and $2 billion in foreign sales). Most of the advanced repowering projects that will demonstrate the more costly, but more efficient and environmentally responsive technologies will not be completed and ready to enter the commercial market until after 2000 The largest market for Clean Coal Technologies is internationally for advanced power applications to meet new capacity requirements.

Question: Do you believe we have an international obligation to improve our global environment and can these Clean coal technologies contribute to that objective?

Answer: Yes, we do. In some cases (global warming), improving the global environment improves the U.S. environment. These technologies can contribute greatly to the improvement of the global environment through reduction of air emissions, water effluents and solid waste (while reducing cost to the rate payer). Also the state of the solid waste from many of these technologies is safer for disposal or in some cases can be used to make products. Also the technologies use less energy and water resources to produce more environmentally responsive power applications..

Natural Gas Vehicles

Question: As you may know I serve on the Speaker's Natural Gas Vehicle Task force and the mission of the group is to develop a legislative policy to realize the energy security and environmental benefits of natural gas vehicles. What do you believe should be done to meet this goal and what role can and should government play to overcome the market entry hurdles that currently limit natural gas vehicles in the transportation markets?

Answer: Although natural gas has been used in vehicles for many years, and is a popular transportation fuel worldwide, many technical and market barriers exist to increased use of natural gas in the U.S. transportation market. DOE is working to address these barriers, as provided for in the Alternative Motor Fuel Act of 1988 and the Energy Policy Act of 1992. DOE research and development (R&D) efforts are focused on key technological advancements that will dramatically increase the range of natural gas vehicles, reduce the costs of manufacture, and capture the improved emissions performance of which these vehicles are capable. Industry investment in light duty and heavy duty engine development for natural gas vehicles has grown dramatically during the last five years with DOE support, but still pales in comparison to industry investments in gasoline and diesel engine development. For example, the DOE Office of Heavy Vehicle Technologies is working with major manufacturers, such as Cummins Engine Company and Caterpillar, to improve the efficiency of direct injection engines with liquefied natural gas (LNG). Engines have been optimized to operate on gasoline and diesel, and the same research and testing must be accomplished to optimize operation using alternative fuels.

Simultaneous with critical R&D, DOE works in partnership with industry, and State and local governments, to identify infrastructure needs, such as refueling, service, training, and information to fleets and consumers on the availability and use of natural gas vehicles. Through the Clean Cities program, the Department works with many partners to identify local programs that can resolve barriers to greater use of natural gas vehicles and all alternative fuel vehicles. We must continue these efforts while also working in partnership with the Environmental Protection Agency, the Department of Transportation, and other Federal departments to identify and resolve administrative and regulatory barriers to greater use of alternative fuel vehicles.

Regarding legislative policies that could help realize the energy security and environmental benefits of natural gas vehicles, the Department is currently preparing a technical and policy analysis, as required under Section 506 of the Energy Policy Act, that addresses the progress made in achieving the EPACT goals; the actual and potential role of replacement fuels and alternative fueled vehicles in significantly reducing United States reliance on imported oil; and the actual and potential availability of various domestic replacement fuels and dedicated vehicles and dual fueled vehicles. A draft of the report will be provided to Congress and published in the Federal register prior to final publication. Some ideas that will be presented for public comment in that report include: correction of the tax policy inequities for liquefied natural gas; other tax policies that might provide incentives for consumers to use alternative fuels; policies that could expand the use of alternative fuels by medium and heavy duty vehicles; incentives that could encourage fleet operators to use alternative fuel vehicles voluntarily; and provisions for trading of mobile and stationary source emissions credits that could promote the use of alternative fuel vehicles.

Strategic Petroleum Reserve

Question: Last year we agreed to sell oil from the SPR to offset the costs associated with decommissioning Weeks Island. Since then SPR sales have been proposed to offset increased spending in other unrelated areas which I gather the Administration supports. Could you comment on what you see as the role of the SPR in our energy policy and what level of reserves is appropriate and at what point would the Administration oppose the sale of SPR oil as an expedient budget offset?

Answer: We see the SPR as the first line of defense to mitigate against severe energy supply disruptions. The Administration opposes any further sales of SPR oil for budget offset because of our policies toward international stockbuilding and our ability to conduct a drawdown would be affected. Under section 161 (h) of the Energy Policy and Conservation Act, certain drawdown authorities cannot be implemented if there are fewer than 500 million barrels of petroleum in the Reserve. Based on sales that have already been directed by legislation and the Administration's proposal to sell $1.5 billion worth of oil in 2002, the Reserve's inventory would be in the range of 500-520 million barrels, and we believe that it would be imprudent to go below that level except as a response to a severe energy supply disruption.

Question: To what extent do international obligations require us to retain some level of oil reserve and do we risk violating those obligations if we continue to sell SPR oil?

Answer: The International Energy Agency requires that United States hold the equivalent of 90 days of net imports. The Strategic Petroleum Reserve has 74 days and private industry has 100 days. We have sufficient excess reserves for the foreseeable future. A Strategic Petroleum Reserve inventory of 520 million barrels and private industry inventories at current levels would equate to 108 days of import protection in the year 2010 even with a 50 percent increase in imports. Private inventories would have to drop another 27 percent (269 million barrels) in 2010 for the U.S. to fall to 90 days of import protection.

Question: At what point do we risk saturating the market and depress the price we could receive for this asset sale?

Answer: Any amount of additional oil can have an impact on the market. However, the net effect is the result of a combination of all of the factors influencing the market at the time of a sale. For example, some of the factors affecting the market this spring have been expectations of a sale of Iraqi oil, low inventories and high demand for heating oil during the colder-than-normal winter. Oil prices increased following the recent sale of five million barrels of Weeks Island oil due to a number of these factors.

QUESTIONS SUBMITTED BY CONGRESSWOMAN BARBARA F. VUCANOVICH

Department of Energy Nevada Operations Office

In the Conference Report accompanying the Fiscal Year 1996 Energy and Water Development Appropriations bill, the Appropriations Committee urged the Energy Department to find a permanent replacement to head the DOE Nevada Operations Office in Las Vegas, Nevada.

Question: Why has the Department not appointed a permanent replacement yet?

Answer: As explained in the next response, the Department is on the verge of making a selection for a permanent Manager of the Nevada Operations Office. Before this point (i.e., 1995 and early 1996), the reasons hampering a selection were as follows:

1. The Department was engaged in a strategic alignment initiative that sought to define the appropriateness of its organizational structures. There was a conscious decision not to select a Manager until we were clear about the status of the Nevada Operations Office as an organization.

2. During a significant portion of 1995, the Assistant Secretary for Defense Programs considered the future of the Nation's nuclear weapons complex and eventually arrived at a shared vision that was understood and agreed to by the key involved customers, stakeholders, and participants. The Nevada Operations Office is a significant part of that vision.

3. The process for selecting a position in the Senior Executive Service is lengthy. Because of downsizing and restrictions on hiring, the Department decided to first review internal candidates. Upon further consideration and in order to avail the Department of the best representative pool, the decision was made to go to open competition to also consider applicants outside the Department, this is often a 3-6 month process.

Question: When will the Department appoint a permanent replacement?

Answer: We are very close to selecting a replacement Manager for the Nevada Operations Office. The position has been posted. Several qualified candidates have responded. A Department of Energy panel has been identified. It is expected that the applications will be ranked, the interviews will be conducted, and a selection will be made during the month of May. The status of the selectee will determine if any clearances are required from the Office of Personnel Management. If not, the Manager will be in place at that point; if Office of Personnel Management clearances are required, we expect the Manager will be in place at a later date.

Interim Storage in Nevada

I suspect that, like last year, there may be a move here in Congress to include in the Fiscal Year 1997 Energy and Water Development Appropriations bill language designating an interim storage site for high-level nuclear waste.

Question: Does the Energy Department support or oppose designating an interim site in Nevada in the context of the Energy and Water Development Appropriations bill?

Answer: The Administration opposes the designation of an interim storage facility at a site in Nevada before the viability of a permanent geologic repository at the Yucca Mountain site has been determined.

Question: If the Department supports it, why? Or, alternately, if the Department opposes it, why?

Answer: The Administration has stated its position that selection of any candidate site for an interim storage facility should be informed by the probability of a feasible repository. We plan to narrow the focus of our scientific work at Yucca Mountain to address the remaining critical and technical uncertainties and develop the information needed to assess the site's viability as a geologic repository in 1998. At that point, the Department will be better prepared to consider Nevada as a candidate interim storage site or determine the need to consider other candidate sites.

TUESDAY, APRIL 16, 1996.

DEPARTMENT OF ENERGY

ENERGY CONSERVATION

WITNESSES

CHRISTINE A. ERVIN, ASSISTANT SECRETARY FOR ENERGY EFFICIENCY AND RENEWABLE ENERGY

THOMAS J. GROSS, DEPUTY ASSISTANT SECRETARY, OFFICE OF TRANSPORTATION TECHNOLOGIES

LOUIS V. DIVONE, ACTING DEPUTY ASSISTANT SECRETARY, OFFICE OF BUILDING TECHNOLOGY, STATE AND COMMUNITY PROGRAMS

DENISE SWINK, DEPUTY ASSISTANT SECRETARY, OFFICE OF INDUSTRIAL TECHNOLOGIES

MARK GINSBERG, DIRECTOR OF THE OFFICE OF FEDERAL ENERGY MANAGEMENT PROGRAMS

Mr. REGULA. We'll reconvene the Subcommittee on Interior. We're going to have some votes here before too long, a series, so maybe we can get this finished ahead of that time.

Ms. Ervin, your statement will be made a part of the record and you may summarize if you choose.

OPENING STATEMENT

Ms. ERVIN. Good afternoon, Mr. Chairman. I do appreciate this opportunity to present the administration's Fiscal Year 1997 budget for the Energy Efficiency programs.

I think the decisions that you make and that Congress makes this year on our request of $745 million are going to have a profound impact on our Nation's environment, economy, and national security. As you mentioned, the details of the budget request are in my written testimony, but because I am so acutely aware of the budget constraints that we all are facing, I want to focus on just two points this afternoon.

First, the Department's request does represent a significant realignment of departmental priorities. The total DOE request for Interior is down 25 percent from the 1996 conference level; it's down 37 percent from the 1995 appropriations. While the efficiency request is a significant increase over last year's mark——

Mr. REGULA. I noticed that.

Ms. ERVIN. It is, nonetheless, below the 1995 appropriation level. We have taken strong actions to reduce our administrative costs, streamline our programs, and eliminate lower priorities.

Finally, the Department's share of the total Interior funds, I notice, is about 3 percent lower than last year's mark, a decrease from about 11 percent of the total to 8 percent. The point is that we're not asking for unlimited funds, but we have made difficult choices based on the merits and based on the return to investment.

Second, I want to be real clear this afternoon in explaining the merits of these programs and why the administration does feel so strongly about the increase. Let me start with the environment. The production and use of energy causes more environmental damage than any other single economic activity. I think without significant changes in our energy resources and our consumption patterns, the problem is going to grow inexorably worse. I'm not talking only about the United States. Energy use in the United States is projected to rise 20 percent between 1990 and 2015, but worldwide consumption is going to increase significantly, by more than a third, over the next 15 years.

The costs of controlling pollution associated with energy are huge and expected to increase. We know that cleaner sources and energy efficiency technologies can prevent this pollution at a fraction of the cost and provide real economic returns in the process. So I think, in fact, what this committee has done over the years has supported what amounts to be the single largest pollution prevention program in the Federal Government or, indeed, the world.

Let me give you a real life example of how that translates into reducing the need for command-and-control approaches. Since 1993 the Department, under the leadership of Hazel O'Leary, has worked with the forest products industry to develop a technology vision called "Agenda 2020." That vision sets out research steps needed to improve the industry's performance, energy efficiency, and total productivity. In its negotiations with the Environmental Protection Agency over the proposed cluster rule, the forest products industry has used Agenda 2020 to show that it could lower its compliance costs nearly 70 percent, from $11.5 billion down to $3 billion or $4 billion, as a result of the partnership that you have supported.

The editor of the industry trade journal, Alan Rooks, was so astonished by this result that he wrote in December, "I am not a big fan of government. There is a very positive government program that directly affects the pulp and paper industry. This project is different and it shows how more government programs ought to work. The paper industry owes the government and DOE a hearty 'thank-you' for providing a much needed jump start. I hope it's not the last one."

This is what our programs are all about, moving from command and control to a new way of doing business. They're also about partnerships which are extremely successful by any other measure. Let me give you just a few examples. In the transportation area, Governor Tommy Thompson of Wisconsin says that our Clean Cities Program to promote alternative fuels provided the synergy needed to bring in private companies. Tom Arteson of Ford Motor Company said that with the clean cities network we don't have to sell the concept of alternative fuels; we only have to sell the vehicles, which is what we do best.

Now in the buildings area, Mayor Emmanuel Cleaver of Kansas City, Missouri says that our Rebuild America program, "provides local communities the flexibility to design and tailor a program to meet their needs, that it helps our Nation's cities help themselves." And Peter Dreyfuss, of Kansas City, also adds, "If we can cut $50 million out of government and non-profit energy expenditures due to the Rebuild program, that money will stay in our community and be used to hire local people."

Finally, talking about the FEMP program, Senator Pete Dominici says that our work in New Mexico is, "a great example of how the public and private sectors can work together to save our important energy resources."

Mr. REGULA. What did you do in New Mexico?

Ms. ERVIN. In New Mexico alone we have a collaboration across a number of interests. In particular, Kirtland Air Force base is planning on saving about $7 million in energy costs over the next several years at no cost to the Federal Government—from its partnership with a utility there—and also reduce water consumption by 50 percent which, as you know, is a critical area.

Mr. REGULA. What role is your agency playing in that?

Ms. ERVIN. The FEMP program, and Mark Ginsberg in particular who is sitting behind me. This is a good example of what the FEMP program brings to bear. FEMP brings the various parties to the table and helps explain and introduce alternative ways of doing business. A lot of people have never heard of energy savings performance contracts. Many people have not understood that they could save significant amounts of money with energy efficiency projects; it's a matter of education, a matter of bringing skills, new performance contracts, introducing utilities to the private service companies. It's the synergy of bringing it all together that works, for a modest investment. What we're asking for in the FEMP program—and we can get into this later—is $30 million. But we're talking about saving $1 billion in the Federal Government.

In regard to the Federal energy programs, at a time when other agencies are significantly cutting back their energy management budgets—I'm talking about Defense and GSA and the Department of Energy—can we afford not to invest in this program that has such a prominent role in helping bring down the deficit?

Now these are the results that are being delivered today. Thanks to the committee's work over the years, we're also delivering world-class research and development that will yield returns measured in terms of international leadership and competitiveness for the 21st century. You're familiar with the R&D 100 awards: they're often called the Nobel prizes for research. In the past five years, projects supported by the Office of Energy Efficiency and Renewables Energy have won 31 of those prestigious awards. That's 6 percent of the total while we have less than one-half of 1 percent of the R&D budget. The recent advances include the sulphur lamp, advanced industrial materials, a methanol fuel cell reformer that can fit under the hood of a car, taking the idea of a nearly pollution-free car powered by fuel cells a long way from the drawing board to the highway.

Now I know that Congress has expressed the idea that our business should be pure R&D, period, that we should not be involved with efforts to see cutting-edge technologies introduced to the market. I believe that this is a false dichotomy. Technology development is not a pipeline into which we pump pure research to yield a finished, commercial technology at the other end.

I think Burton Richter, the outgoing president of the American Physical Society, puts it very well. He describes the technology process, or the R&D process, as a double helix model with constant interaction and refinement between the research lab and the private sector, between the public and the private sector. And until we realize the value of that kind of partnership in our budget priorities, we're going to let many promising technologies languish or we'll let our oversees competitors snatch them up for development, as we have done in the past in a number of areas.

Finally, I want to talk about the programs aimed at helping low-income Americans. These are households and families that on average spend 14 percent of their income on energy while you and I spend less than 4 percent. These families do not have the money to pay for efficiency investments that we know can cost-effectively cut their energy bills. These programs did take hard hits last year. Weatherization was cut by approximately 50 percent. The number of local agencies doing low income weatherization work is falling by 30 percent. And the State energy offices who often partner with us to help bring these programs and others to the local level was also cut 50 percent. Now these programs, some of them may not be glamorous, they might not be high-end R&D, but they work. They save households money; they reduce uncollectible utility bills; they improve the quality of life, and they produce these results cost-effectively.

We're not coming here asking for a blank check. We're doing our part to reduce costs and to work more efficiently. We're eliminating programs like the oil heat program, municipal solid waste research program, super critical carbon dioxide cleaning, cheese whey to ethanol conversion, emissions testing of light-duty vehicles; I can get you a list of the programs that we've eliminated.

And as part of the Secretary's strategic alignment initiative, we've closed four out of our ten support offices located in New York, San Francisco, Dallas, and Kansas City on March 31. This action is expected to generate $58 million in savings. In addition, the program anticipates a 50 percent reduction in support service contract costs, from $26 million to $13 million in Fiscal Year 1996.

Our office has also submitted to this committee a reprogramming regarding a proposed reorganization which spreads the programs formerly within the Office of Technical and Financial Assistance throughout the organization to better link research and deployment efforts.

Mr. Chairman, in closing, I fully appreciate the difficult constraints that this committee must operate under. I hope that I've been able to convey to you the reasons why the administration believes so strongly in this request. Thank you. My management team and I would be happy to answer any questions that you might have.

[The statement of Ms. Ervin follows:]

Statement of Christine A. Ervin
Assistant Secretary for
Energy Efficiency and Renewable Energy
United States Department of Energy
FY 1997 Appropriations Hearings
April 16, 1996

Overview

Mr. Chairman, members of the Committee, I appreciate this opportunity to present the Administration's Fiscal Year 1997 budget request for Energy Efficiency Programs.

We propose a budget of $760 million in total program resources comprised of $715.4 million in new budget authority and the balance from other sources. We believe this presents a balanced portfolio of research, development and State and local programs to provide America with a stream of successful energy efficiency energy technologies - helping prepare our nation to compete successfully in the global economy of the next century. This request is a significant increase over the FY 1996 Conference mark, but is below the level of 1995 appropriations. The requested increase in Energy Conservation represents a substantial realignment of Departmental priorities -- the total DOE request for all Energy Programs is down 13% from the FY1996 Conference mark and 38% down from FY1995 appropriations. Thus the requested increase for Energy Conservation is within a lower overall Interior request.

Energy Efficiency R&D Programs Provide Huge Returns on Investment to Our Nation

The energy efficiency programs to be funded under this request directly contribute to our Nation's future. In the year 2000, energy efficiency programs funded in this request are projected to cut energy demand by nearly 2 quads per year, and help businesses and consumers to save over $10 billion in annual energy costs and cut carbon emissions by over 30 million metric tons (MMT) per year. In the year 2010, these programs will assist industry in saving annually over 8 quads of energy, $70 billion in energy costs, and 150 MMT of carbon emissions reductions, including nearly 2 million barrels per day of reduced oil consumption.

These programs deliver substantial benefits by cutting business costs, improving environmental quality, reducing long-run health costs, maintaining stable energy prices and enhancing energy security. They provide competitive advantage and economic benefits to U.S. businesses, industry and citizens. Let me touch briefly on three of these points.

Cutting Business Costs - Improving Economic Security

Today, considerable capital is wasted on inefficient equipment and pollution controls by American businesses and industry. But decision-makers across our nation are discovering that investments in energy efficiency technologies cut costs - freeing up monies that can be used to increase wages or capital investment - a potential source of investment capital for both the firm and the economy. This investment capital can make companies and their products more productive and more efficient, thus more competitive in world markets. In addition, companies manufacturing energy efficiency and pollution prevention technologies can compete in the emerging trillion dollar global market for energy and environmental technologies.

Improving Environmental Quality

The production and use of energy causes more environmental damage than any other economic activity in the world today. Without significant changes in energy sources and consumption patterns, the problem will grow inexorably worse. Energy use in the United States is projected to rise 19% between 1995 and 2015, while world energy consumption is expected to rise by a third over the next 15 years. Costs of *controlling* this related pollution are huge and expected to rise. However, there is a better way. Cleaner energy sources and energy efficiency technologies can *prevent* this pollution at a fraction of the cost of control and provide real economic returns on investment to business and industry. *Energy efficiency technologies provides an important path to minimizing the environmental impacts of energy while simultaneously spurring economic development.*

Maintaining Energy Security

U.S. oil imports as a share of consumption are approaching record levels and the Energy Information Administration projects that this dependence could grow to nearly 60% within 10 years. This dependence aggravates the trade deficit and leaves the American economy vulnerable to oil price shocks - with potentially severe economic impacts. Energy efficiency technologies in transportation and industry can substantially cut the growth of oil imports while simultaneously making our economy more resilient in the face of almost uncertain future price shocks.

The challenge DOE faces in FY 1997 is to produce beneficial new technologies with fewer resources, maintaining the vital contribution of energy efficiency and renewable energy in the Administration's and Congress' vision. To meet this challenge, our FY 1997 Budget Request proposes funding for programs that will leverage significant non-Federal investments and will produce high economic, environmental and energy-security benefits, while accelerating the entry of U.S. technologies into the global marketplace. We will continue to work in partnership with industry, utilities, consumer groups, and State and local governments to leverage our efforts and ensure that our customers make effective use of energy efficiency technologies.

By the year 2000, the investment contained in the FY 1997 budget request will more than pay for itself in the value of energy cost savings than every energy consumer in our Nation will receive. Many of these savings are spent on domestic goods rather than foreign oil, so billions of dollars will be added to the U.S. economy. Just as important, the investment in energy efficiency technologies will prevent millions of tons of air, water and ground pollution benefitting every person in the United States, particularly the 150 million people living in the 190 areas that do not meet the air quality standards of the Environmental Protection Agency.

This Budget Request Represents a New Way of Delivering Returns to Taxpayers

In addition to modifying our portfolio to meet new futures, the Office of Energy Efficiency and Renewable Energy is re-engineering HOW we offer it. We are reinventing how government interacts with the private sector.

- We are working more closely with the American public, our customers, building voluntary partnerships with industry, business, state and local governments and energy consumers.
- We are using relatively small amounts of Federal money to leverage large amounts of private investment.
- We are stressing flexibility and innovation to be responsive to our customers.
- In a time of fiscal austerity, we are cutting administrative costs and overhead, downsizing operations and operating more efficiently.
- We are committed to continuous improvement, customer involvement and market-driven action. We are striving to operate more like a business, and less like a bureaucracy.
- Rather than offering vague promises of progress, we are setting clear goals and annual progress targets so that we are accountable for real results.

In the following sections I summarize the specifics of our request and discuss our accomplishments to date and the results it will return in the future.

Transportation Sector

Consuming less energy--and different forms of energy--to meet our requirements for mobility can make a significant contribution to improvements in air quality, and to arresting our growing reliance on petroleum. The direct impact of imported oil on our balance of trade is currently $50 billion a year. Of equal concern is the vulnerability of world oil prices to disruptions in oil supplied by the Middle East, which currently accounts for 28 percent of world petroleum production.

The $221.3 million requested for transportation-related activities will enable the Department to continue building the important foundation for a "revolution" in transportation. This investment will allow us to significantly alter current projections of United States demand for energy, particularly oil, after the year 2005. As technologies developed through programs, such as the

Partnership for a New Generation of Vehicles (PNGV), penetrate the market, the peak of U.S. transportation oil use will decline due to efficiency gains and the use of alternative fuels.

Maintaining U.S. leadership in transportation technologies is vital for a strong and competitive economy. U.S. producers must be leaders in new technology development and deployment, have access to and use the most scientific, engineering and production breakthroughs, and make investments in both production capability and the infrastructure required to support departures from current technology. Changing future fuel use and emissions will require sustained commitment and significant investment. Working in partnership with vehicle manufacturers, component suppliers, States, and others, the Department of Energy's overall goal is to provide consumers with cost-competitive transportation options simultaneously reducing oil demand and greenhouse gas emissions. The importance of this goal is underscored by the Department's request for increased funds, despite the recognized need to reduce overall Federal expenditures.

Improved Fuel Economy

A fiscal year 1997 budget request of $148.8 million will support the continued development of technologies to achieve the objective of tripling automobile fuel economy by 2004. The investment in hybrid vehicle development will result in a vehicle propulsion system that doubles fuel economy by the year 2000, and is a necessary step in achieving the 2004 goal. ***For an investment of less than $1 per automobile per year,*** for all automobiles in use, the Department is working with its national laboratories and U.S. industry to develop and introduce propulsion, energy storage, control, and materials technologies. Drivers of fuel efficient vehicles using these technologies will save $440 in fuel expenses in the first year, assuming 13,000 miles driven, and $1.36 per gallon fuel costs, and, over the life of the vehicle, about $4,400 in fuel expenses, assuming 130,000 miles over 13 years. These savings are based on the conservative assumption of relatively constant oil prices through the next several decades. If we experience oil price shocks, as we have in the past (the last one in 1991 doubled world oil prices for a few months and caused gasoline prices to rapidly increase by 25 cents per gallon), then the benefits to both drivers and the nation will be even greater. The automotive technologies program will also result in much cleaner cars and light trucks: over their life, these new vehicles will produce 7.8 fewer tons of carbon dioxide (the major greenhouse gas) per vehicle than conventional cars.

The $7.2 million requested for the Heavy Duty Engine R&D program will continue work with the three major heavy duty diesel engine manufacturers to improve the energy conversion efficiency of diesel engines to 50 percent by 1999 and 55 percent by 2002. The goal is a fuel economy improvement of 22 percent relative to current engines, which would save $3,700 per year in diesel fuel costs for each new truck. Additionally, the emissions of these new engines will be reduced by 60 percent. When these new engines fully penetrate the market place, the nation will realize an energy cost savings of approximately $4.2 billion per year.

Producing marketable ceramic components for vehicle engines, and using them to reduce exhaust emissions and improve fuel economy, will occur from the successful completion of the Advanced

Ceramic Manufacturing Technology projects with industry, started several years ago under the Propulsion System Materials Program. The objective is to develop manufacturing technology for mass producing low cost and high quality diesel engine components, including engine valves, fuel injector plungers, and turbocharger rotors. Success will be measured by producing higher volumes of ceramic components, and testing some of them in engines. The research and development program encompasses cost modeling, powder processing, continuous sintering, intelligent processing, statistical process control, component machining, inspection, and testing. Commercial success will be assured by conducting the research with teams, led by ceramic companies, and including diesel engine manufactures and equipment suppliers.

Alternative Transportation Fuels

Between now and the year 2000, increasing the use of alternative fuels will be the primary means for changing transportation energy consumption patterns. While the absolute amount of oil use will not be affected greatly before the end of the decade, the programs established now are vital to achieving significant use of alternative fuels by the year 2000 and beyond.

Much of the budget request for alternative fuels is to support activities which stimulate near-term deployment. The Department's alternative fuels program continues to emphasize the leveraging of its funds by forming, promoting, and supporting new partnerships. By joining Federal agency fleet initiatives with those of other fleet owners--through the Clean Cities Program, for example--the opportunity exists to create orders for larger numbers of alternative fuel vehicles. As a result, manufacturers are offering more vehicle models fueled by natural gas, ethanol and electricity, and the number of refueling sites continues to grow.

With the $10.9 million requested for alternative fuel vehicle (AFV) deployment in FY 1997, the highly successful DOE Clean Cities program will expand from 44 cities in 24 States to 55 cities in 35 States. To address a major customer concern over regional fuel availability, a Clean Corridors program will link these Clean Cities along major interstates. Our goal is to help the national alternative fuel vehicle fleet to grow from 385,000 to 435,000 in 1997, which would remove 87,000 metric tons of carbon from the air. For the first time, AFVs will be on the floor in dealers showrooms, many priced the same as their gasoline counterparts. These vehicles will be offered to a well-informed public as a result of the Department of Energy responding to 10,000 telephone inquiries, distributing over 100,000 brochures and documents, and sponsoring of town hall meetings and media events. Students will ride safer and cleaner on the next generation ULEV-CNG school bus. The prototype bus will be introduced on Earth Day '96, but orders for 1997 delivery are already being processed. By the year 2010, 100,000 barrels of oil per day are projected to be displaced as a result of alternative fuel vehicle programs and 0.8 million metric tons of carbon-equivalent emissions will be eliminated per year.

$14.4 million is being requested for alternative fuel vehicle research and development activities. Research will continue on ways to reduce the cost of light duty compressed natural gas (CNG), ethanol, and liquefied propane gas (LPG) vehicles. Success in this area could lead to over

500,000 alternative fuel vehicles by the turn of the century. Ultra-low emission vehicle (ULEV) ethanol and propane automobiles will be fully developed and demonstrated in FY 1997. Further work on these types of vehicles will provide for increased fuel economy, translating into operational cost savings for the consumer. Development of alternative fuel technology for heavy vehicle engines, capable of using alternative fuels, will also continue. Currently there are over 400 heavy vehicles operating in DOE field test evaluations. Data collected on these vehicles indicate that advantages exist for alternative fuel operation relative to operation on petroleum-based fuels, when impending emissions regulations are taken into account.

Buildings Technologies, State and Community Programs

Since I testified before this committee last year, we have, as part of our Strategic Realignment Initiative, merged the Office of Building Technologies and major components of the Office of Technical and Financial Assistance, including the Weatherization Assistance Program, the State Energy Program, and the Municipal Energy Management Program. The resulting new Office of Building Technology, State and Community Programs melds the scientific and technical capacity of the buildings programs with the extensive field experience, well-developed information transfer network and outreach expertise of the former OTFA. Newly structured, we are confident that the organization will provide enhanced leadership to make the nation's building stock more efficient, comfortable, affordable and sustainable. The FY 1997 request for the Building Technology, State and Community Programs is $319M, of which $195.5M is for weatherization and grants.

The energy used to heat, cool, and light our buildings - and to provide the wide array of building-related comforts and services that help create our quality of life - now costs consumers over $200 billion per year. Home energy costs the average household 6 percent of before-tax income, and costs very low income households over 12 percent. Reducing these costs would increase discretionary income, and create more jobs and economic growth if spent on goods and services other than energy.

Less obviously, energy use in buildings creates a significant portion of our environmental problems. Energy use in buildings account for one-third of our total energy use and two-thirds of the electricity consumed in the United States. Energy use in buildings now causes atmospheric carbon dioxide emissions of almost 500 million metric tons [nearly 2 tons per capita] of carbon annually - 8 percent of the global total, and more than the entire emissions of Japan and the United Kingdom combined. Energy use in buildings is also responsible for half of U.S. sulfur dioxide emissions.

Although dramatic improvements are being made in the efficiency of many aspects of energy use in buildings, these are being overwhelmed by strong sectoral growth and increasing demand for energy services such as air conditioning. Energy use in buildings is currently forecast to increase 10 percent by 2010. To offset this potential increase, DOE plans to achieve an overall 15 percent improvement in buildings energy efficiency by 2010. This would:

- ***save consumers from $22 billion up to $39 billion annually*** by 2010, and up to ***$700 billion cumulatively*** through 2020;

- ***reduce carbon emissions by 60 to 100 million metric tons*** annually by 2010.

These benefits will be achieved by an approach which has three components:

- supporting ***Research and Development*** to create the best new, cost-effective, and environmentally friendly technologies and bringing these technologies to the market with private and public sector partners;

- ensuring broad access to and acceptance of improved technologies and practices through ***Technology Introduction and Market Conditioning*** activities such as providing credible information and stimulating volume purchases; and

- providing a floor ensuring economically minimum levels of energy efficiency for appliances and equipment and supporting state and local activities on building efficiency codes for whole buildings through legislatively- mandated ***Appliance and Building Standards***;

To implement this approach in the most cost effective way, DOE has redesigned key elements of its program, and has defined "***a new way of doing business***". We are ***consolidating some programs providing grants to states***, and to improve programs results, provide greater flexibility to address particular energy and environmental issues from a State perspective, streamlining regional offices saving over $30 million in administrative costs over the next 5 years. We are ***emphasizing partnerships, consortia and collaboratives*** with the private sector to add expertise, build momentum, reach more customers faster, and increase leverage. And we are ***reinventing the appliance standards process*** to improve quality, increase stakeholder involvement, and reduce confrontation and time requirements to achieve standards which benefit both consumers and manufacturers .

Key program investments include:

- For residential buildings, ***Building America*** has the goal of improving the energy efficiency of new homes by up to 50% percent without increasing first costs. Four industry consortia have been formed, the first test houses will be operating in FY 1996, and housing developments and improved versions will be addressed in FY 1997. We are requesting $6.7 million for this project.

- For commercial buildings, ***Rebuild America,*** for which we are requesting $10.1 million, has the goal of obtaining commitments to improve the energy performance of 400 million square feet of commercial floor space by 25 percent in FY 1997, and create 250 partnerships to retrofit more than 2 billion square feet by 2000.

- ***Technology Introduction Partnerships*** has created a 20 percent efficiency upgrade package for manufactured housing; 1000 of these packages are planned to be sold in FY 1996, and 10,000 in 1997. The program has also stimulated a volume purchase of 20,000 highly efficient refrigerators in FY 1996, with an additional 30,000 planned for 1997. We are requesting $11.9 million for this project.

- ***Building Equipment R&D***, has licensed two advanced natural gas technologies - residential gas absorption [GAX] heat pump and commercial chiller - to major manufacturers; commercial introduction of both is expected in 1999. The sulfur lamp has been demonstrated in several locations; initial commercial units will achieve 100 lumens per watt, increasing to 135 by FY 1999. Our request for these space conditioning and lighting research activities is $16.2 million.

- The ***Building Codes program*** has provided State grants to assist builders and code officials to update their building codes, released MECcheck software to assist them in enforcing those codes, and released the Home Energy Rating System Guidelines to create consumer demand and enable builders to market energy-efficient homes. In 1997 we will provide technical and financial assistance to help states implement their home energy rating systems and updated energy codes. The request for the Building Codes program is $15.8 million.

- The ***Lighting and Appliance Standards program***, for which we are requesting $8 million, will increase stakeholder participation through an analytically-based consensus process, revise efficiency test procedures to ensure that innovative designs are fairly tested, and conduct a new labeling initiative to help states and utilities promote their own conservation and demand side management programs.

- The ***Affordable Homes for Low Income Housing program***, for which we are requesting $3.1 million, provides technical support to HUD, public housing authorities and local community housing providers. It is anticipated that these organizations will commit to 30 percent efficiency improvements in 100,000 public housing units in FY 1997, increasing to 1 million units by 2000 - reducing the need for energy subsidies by $200 million per year.

- In the ***State Grant Programs***, the Weatherization Assistance Program reduces the energy burden and improves the health and safety of low-income Americans by weatherizing 56,500 low-income homes in FY 1996. An impressive average annual savings of energy and costs of 18 percent per household and a positive benefit-cost ratio of better than 1:6 has been instrumental in leveraging $200 million annually ($125 million estimated in FY 1996) of non-federal resources for program use. The FY 1997 request of $155.5 million would make it possible to weatherize about 79,000 homes, generating 8,000 direct jobs and an additional 3,500 indirect jobs. $38.4 million is requested for the Sate Energy Program. It will be the vehicle through which a number of grant programs, including the Institutional Conservation Program, may be consolidated and further streamlined. We estimate that 6,300 jobs will be generated and that the program will leverage non-DOE funds at the rate of four to one for every federal dollar invested.

Federal Energy Management Program (FEMP)

Through the Federal Energy Management Program (FEMP)'s efforts, the Federal Government has already achieved success in energy efficiency and cost savings. Fiscal year 1996 highlights show that Federal energy consumption continued to fall, resulting in more than $900 million in annual energy savings by the end of FY 1994, with cumulative savings of $7.4 billion (1984 constant dollars) from the 1985 baseline. In FY 1994 the Government surpassed the 1995 goal by achieving an 11.2 percent energy reduction in buildings. Three agencies -- the Departments of Energy and Justice and the Federal Emergency Management Agency -- have already achieved 20 percent reductions, with 10 more agencies exceeding 10 percent reductions. As the world's largest single energy consumer, the Federal government demonstrates leadership by investing in energy efficiency practices that will reduce energy consumption in its facilities by 30 percent in 2005, saving a cumulative $20 billion by 2015. FEMP will equip Federal energy managers to make wise energy investment decisions to reduce government costs $1 billion annually by 2005. The FY 1997 request for FEMP is $31.9 million.

In FY 1997, FEMP will partner with Federal agencies to expand the range and availability of energy project financing mechanisms, emphasizing private sector funding through Energy Savings Performance Contracts, utility incentive programs, and including efficiency services in utility area-wide contracts. FEMP will award six new major energy saver performance contracts to make it simpler, cheaper and faster for government agencies to save energy and that will have $250 million investment potential per contract over ten years. In addition, FEMP plans to apply 15 energy and money saving technologies used in the "Greening of the White House" to three additional showcase buildings and existing Federal facilities.

To help deliver an economic and secure energy future, the Federal Energy Management Program will deploy cost-effective energy and water technologies, as well as solar and other renewables energy, as a means to reduce energy costs in Federal facilities. Twenty-two Federal agencies have committed to using the buying power of the Federal Government to reduce operating costs for Federal agencies, expand markets for the latest energy efficiency and water conservation products, and create new entry markets for advanced energy-saving technologies and products. This will stimulate lower unit costs from volume buys.

There is a strong commitment to environmental excellence in Federal agencies, however, they need good information, education and programs to help make the best decisions. With the right support, our government can set a good example and lead the way to reduce and prevent pollution. As part of the Department's environmental stewardship, in FY 1997, FEMP proposes $7 million to apply existing technology deployment mechanisms to DOE and Federal facilities. FEMP will provide technical assistance to Departmental elements to implement a joint demonstration program for chiller replacements and steam plant conversions as a pilot for expanding this effort to all Federal agencies. FEMP will work with DOE HQ program managers and program managers at DOE facilities to identify chiller retrofit projects and steam plant conversions and explore energy savings performance contract opportunities. In addition, FEMP will work to advance Federal facility energy management through incorporation of technology deployment lessons learned in Federal facilities. This effort will explore the potential Federal sector benefits of CCAP programs, such as Technology Introduction Partnerships, NICE3, Rebuild America, Climate Challenge, Climate Wise, Motor Challenge, among others, and extend them into the Federal sector as appropriate.

Industrial Technologies

Industrial energy efficiency is critical to the U.S. economy and inextricably linked to our ability to efficiently manufacture the goods and services for the nation and improve our environment. Its importance is indicated by the fact that industry consumes about 31 quads of energy (37 percent of all energy in the U.S.) at a cost of nearly $100 billion annually. In addition, industries currently spend about $48 billion a year for pollution control.

Our programs are predicated on the position that we can have economic growth and improve the environment at the same time. Industry agrees. Industry is developing its vision of how to achieve both energy and environmental savings through improved process and materials efficiency in seven energy intensive industries. DOE's role is to challenge and catalyze the creative capabilities of industry to achieve these mutual goals.

The pulp and paper industry is a key example. In the development of the Industries' vision, Agenda 2020, the industry established a research vision that is already playing a role in deliberations with the Environmental Protection Agency in meeting environmental goals. This research agenda will provide for resource and energy efficient technologies that will achieve enhanced environmental protection at a significantly reduced compliance cost. Industry estimates it could reduce its compliance costs from about $11 billion to $3 billion. The Agenda 2020 process is being followed in other energy intensive industries and represents our philosophy of how to partner with industry to provide the research necessary to achieve national objectives. I am pleased to relate that in addition to forest and paper products, we have already signed commitments with several other industries including steel and metal casting, and expect to sign with the glass industry this month.

In FY 1997, the request for Industrial Technologies is $159.4 million. Within this amount, $74.4 million directly relates to the Industries of the Future program, that will fund near, mid, and long term research and development to improve industrial energy efficiency, increase productivity and improve our ability to retain manufacturing excellence in seven key industries--forest and paper products, steel, metal casting, glass, chemicals, aluminum, and petroleum. These industries employ 2.7 million workers directly and provide basic materials to the entire U.S. manufacturing sector which employs over 18 million workers. A number of projects will be supported. In the aluminum area for example, the FY 1997 request provides for the start of pilot scale aluminum spray forming tests supporting the Partnership for a New Generation of Vehicles. This breakthrough technology will allow for improved productivity and lower cost of light weight auto materials. In the petroleum area, funding will provide for completion of a partnership with industry to improve industrial burner design that will reduce air toxics formed in the combustion process as well as other ongoing projects. In steel research, funding will be used for ongoing projects for advanced process control and field test of nickel aluminide rolling mills. In the forest and paper products industry, funding will support a variety of technologies including high solids black liquor firing, low lignin content pulp production, recovery boiler modeling and control, innovative non chlorine bleaching, and sensors for improved process control. Another part of this request provides funding for the textiles industry, which is an ongoing program which was transferred from the Office of Energy Research and the Office of Defense's technology transfer program.

We are also requesting $39.4 million for Crosscutting Technologies to address research needs common in all of the Vision Industries. This includes cogeneration and advanced industrial materials. As a result of the FY 1997 funding, we expect to achieve a field test of ceramic components including combustor and turbine blades that are key to achieving higher efficiency and lower emissions. These activities will move us toward commercial introduction of advanced turbine systems in the year 2000. We are utilizing a number of Departmental resources including the DOE laboratories through the Industries of the Future Laboratory Coordinating Council to apply the best the Department has to offer to this exciting program. FY 1997 funding will increase our efforts with these important industries.

In FY 1997, we are requesting $37.8 million for Technology Access Programs that facilitate and promote the introduction of advanced, energy efficiency, renewable energy and pollution prevention technologies to industry. This program represents a major part of the Administration's commitment to addressing global climate change. DOE works closely with industry, Federal, State and local governments, industry and trade associations, inventors, universities and others to expedite adoption of advanced technology that can achieve substantial reduction in energy and carbon dioxide emissions that affect climate change. This strategy is carried out through five programs.

The Industrial Assessment Center (IAC) Program provides energy and waste assessments to small and medium sized manufacturers using engineering faculty and students at over 30 university engineering departments throughout the country. This program has already provided technical assistance to manufacturers in 43 states resulting in over $400 million in energy savings at a Federal investment of $33 million. FY 1997 funding will continue these efforts.

The Motor Challenge Program works with industry to increase market penetration of energy efficient motor-driven systems. When these are widely adopted, industry could save $1.5 billion per year by the year 2010. Motor Challenge already has more than 1,200 partners and has reached over 10,000 end users through video conferencing and information outreach efforts.

The National Industrial Competitiveness through Energy, Environment, and Economics (NICE3) program provides funding to State and industry partnerships for projects that demonstrate advances in energy efficiency and clean production technologies. This is another example of win-

win opportunities for businesses that are able to enhance their productivity and the American public who will reap the benefit of cleaner air and water. To date, NICE3 has sponsored 46 projects in 21 states with 55 percent cost sharing from the partners. The Federal investment of about $12 million has leveraged projects with a total value of savings of over $53 million. These savings will continue to accrue annually, increasing the value of the program's benefits. FY 97 funding will expand the program to provide additional partnerships.

The Climate Wise Program was established to develop voluntary energy partnerships with industry to reduce greenhouse gas emissions rather than rely on command and control policies of the past. To date, more than 60 Climate Wise partners, representing 6 percent of industrial energy consumption have committed to a reduction of five million metric tons of carbon equivalent by the year 2000. Climate Wise companies are expected to realize $600 million in annual energy cost savings in the year 2000, due to the investments they make that our stimulated by information from this program. The FY 1997 request is $3.4 million.

The Inventions and Innovation Program will continue to offer opportunities for inventors, innovators and entrepreneurs to make their energy-related ideas into a commercial reality. To date about 25 percent of the inventions have been commercialized, generating cumulative sales of over $900 million. This program taps the creativity of the small entrepreneur and businessman that creates the industries of tomorrow.

Policy and Management

The $28.4 million requested for Policy and Management supports program management at Headquarters and program implementation activities at the Golden Field Office and the Regional Support Offices. Also included are important initiatives in International Market Development and Information Outreach activities transferred from the Office of Technical and Financial Assistance as part of our Strategic Realignment Initiative. The Headquarters management function enable the entire Office of Energy Efficiency and Renewable Energy to meet its mission more effectively through corporate planning, execution, evaluation and improved customer service.

Conclusion

Mr. Chairman, we believe that our broad of range of programs offer enormous benefits to our citizens and to our nation and with continued support will continue to enrich the lives of future generations. Thank you for your continuing leadership and support in this areas of critical and enormous potential.

PROGRAMS ELIMINATED IN THE FISCAL YEAR 1997 BUDGET FOR ENERGY EFFICIENCY

In the Office of Transportation Technologies the following actions were taken to eliminate or reduce the scope of programs or projects:

Privatized one of two transportable heavy duty chassis dynamometer/emissions test rigs for a savings of $800,000.

Terminated projects to emissions test light duty vehicles running on alternative fuels for a savings of $1,400,000.

Terminated a project to collect information regarding light duty fleets operating on alternative fuels for a savings of $1,500,000.

Down-selected long-term advanced battery candidates to a single lithium-based technology, for long-term savings of $15,000,000.

Terminated the High Temperature Materials Fellow Program, for a savings of $500,000.

Terminated projects to manufacture complex ceramic automotive gas turbine components for a savings of $2,500,000.

Within the Office of Building Technologies, State, and Community Programs, we have terminated the Oil Heat Furnace program, for a savings of $994,000, and well as the Radon project which is part of the Best Practices Program for a savings of $100,000.

Within the Industrial sector, we have eliminated about 40 specific projects,for which Fiscal Year 1996 funding was $20,000,000. The projects with FY 1996 budgets in excess of $500,000 that were dropped from this year's budget include:

The National Center for Manufacturing Sciences Cooperative Agreement
Precursors for Specialty Plastics from Renewable Feedstocks
Scrap Tire Recycling
Technology Maturation, Outreach and Marketing for the Chemical Industry
Papermaking/Impulse Drying
Development of an Advanced Membrane Device in Refining Emission/PERF (Refining)
Ethanol from Refining Wastes
High Temperature Catalytic Membrane Reactor
Advanced Process Control Research for the Steel Industry
Synthesis and Design of Intermetallic Materials (Advanced Materials)
State Block Grants (NICE3)

FUNDING PRIORITIES

Mr. REGULA. Thank you. I see your request is $191 million above the Fiscal Year 1996 conference level. That's a 35 percent increase, and we're probably going to be faced with even less money in 1997 than we've had in 1996. For the record, what programs would you eliminate or further decrease to reduce the funding level by 1997 if the reality is that you're in a $500 million level instead of $745 million?

Ms. ERVIN. As I explained to you earlier, the administration feels strongly——

Mr. REGULA. Oh, I understand that.

Ms. ERVIN. It has taken steps to re-allocate priorities within the Department of Energy's budget and within the administration's overall request to the Department of Interior. So we feel we have done our part to make some tough choices within the Department and within the administration. As you know, also, the President vetoed the Interior bill based in part on the low funding and on the language regarding the appliance standards. We generally do not accept the direction of the authorizing committee for the nature, the direction, and the importance of these programs.

Mr. REGULA. I know, but you can't ignore the authorizing commitee and nor can we.

Ms. ERVIN. The President's budget was submitted very recently. We don't have the 602(b)s out. We feel very strongly in these priorities. So I think it would be premature for me to talk about priorities and how we would reach a $500 million——

Mr. REGULA. Well, we may have to get back to you when we go to the chairman.

Ms. ERVIN. I understand.

Mr. REGULA. The staff points out to me that we hope to mark up in May, so you'd better be thinking seriously about your priorities, because I would rather you suggest them to us than for us to impose them on you.

APPLIANCE STANDARDS

You mentioned the appliance standards: are you in negotiations now to try to reach some agreement on those?

Ms. ERVIN. Yes.

Mr. REGULA. How are you coming?

Ms. ERVIN. It's coming along well, but it has not been a trivial exercise. You and a number of others realize how controversial this subject was over the last year.

Mr. REGULA. I've heard of it.

Ms. ERVIN. Yes, you've heard of it. And basically I would describe it in this way: there are a number of States, consumer groups and environmental groups, and some manufacturers who want us to move forward very aggressively because of the big savings and pollution prevention associated with the programs. On the other hand, a number of manufacturers have been very distressed with the uncertainty associated with the programs and with potential cost burdens. We started a reinvention process about two years ago for the program to expedite the rulemakings, but in the last four to six months we have greatly accelerated that. It has been a brutal constructive process.

One of the latest developments has been a two-day workshop with about 80 participants in which we just laid it all out in terms of the various issues that have been raised in our proposal for moving ahead. The reactions from many that had not been involved in the discussions to date were very skeptical at first, turning to guarded optimism and in some cases pure optimism. So I feel very comfortable that we've made this a good faith effort. We plan to make some major changes in the program and we're in negotiations now with a number of groups in manufacturing organizations to see if we can make the changes fast enough to avoid the need for another moratorium in the next Fiscal Year.

Mr. REGULA. We'd like to know where you're headed on that because we'll have to make a decision when we do mark up.

Ms. ERVIN. You bet.

FUEL CELLS

Mr. REGULA. Fuel cells, what vehicles are included in your research and what is the stage of development in this technology?

Ms. ERVIN. Well, the fuel cells work includes about $30 million. That's about a $10 million increase for fuel cells, and I'll let Tom Gross, our Deputy Assistant Secretary for Transportation, explain exactly what we're doing in fuel cells.

Mr. GROSS. Mr. Chairman, all of the requirements for Fiscal Year 1997 for fuel cells would be focused on light duty vehicles, automobiles.

Mr. REGULA. How soon do you think these will be commercially feasible?

Mr. GROSS. Well, if you take a poll, even in our own office we get a variance usually between about 2004 and 2015. The preponderance of thought is that it's very high-risk real probability to be able to have a fuel cell vehicle which would be the propulsion system ready to commercialize in a passenger vehicle by 2004.

Mr. REGULA. Would they most likely be successful in stationary applications?

Mr. GROSS. There's a lot of work going on in stationary applications as well. We are, in fact, proposing some funding for the buildings applications and the work that we're doing is in proton sheath membrane fuel cells, would have potential application in both stationary, in decentralized power applications for buildings, and now in fossil energy, of course, is supporting research in different types of fuel cells for larger stationary applications.

Mr. REGULA. Are we even close to a product that would be competitive in the marketplace compared to other sources of energy?

Mr. GROSS. We've made substantial progress in the last couple of years particularly, with, the result of work at Los Alamos and General Motors, for example. That project has made some tremendous advances in terms of getting the projected costs substantially down and reducing some of the major cost factors associated with fuel cells for vehicles, for improving designs, lowering the volumes and weights necessary for these power plants.

Ms. ERVIN. Mr. Chairman, perhaps we could show you a chart here to demonstrate the progress that we've made.

Darrell, could you bring that up to the table?

On the upper righthand chart, you'll see the reduction that we have made very quickly in the fuel cell costs. If you were to look at 1990, the cost was $10,000 per kilowatt hour for the fuel cell cost; that's just 1990. And in the last several years that has come down by almost a factor of seven or eight.

Mr. REGULA. Well, you've projected $55 per kw; what would that compare to in other sources of energy?

Ms. ERVIN. You have to put that in the context of the use of that energy. To be cost-competitive and to work the transportation area, we would need $55.

Mr. GROSS. Fifty-five dollars is competitive.

Ms. ERVIN. But now in the buildings area—you were talking about that application—you would, in order to be cost-effective for a larger application, be more on the order of, what, $1,200?

Mr. DIVONE. You'd begin to enter the range there. In the buildings area you don't have the size constraints or weight constraints that you have in a vehicle. You also have the natural gas infrastructure in large numbers of buildings already and so it makes it easier in that sense. There are a couple of differences in terms of the temperature and in terms of the lifetime of the membranes, which is the research we're proposing to build on Mr. Gross's research.

Mr. DICKS. Congressman Skaggs will have my questions.

Mr. REGULA. All right. Mr. Skaggs.

Mr. SKAGGS. I don't have his questions. I have my questions. [Laughter.]

Mr. REGULA. We'll lead off with yours to start.

NATIONAL RENEWABLE ENERGY LABORATORY

Mr. SKAGGS. I'm very sorry that I missed your opening statement. Just a little Colorado self-interest to start with, if I may. How are we doing at NREL? I am pained by the level of staff reductions that have had to occur there and the consequences that will no doubt flow, but I'd like to get your sense of how grim the news is. What are we losing by the kinds of cutbacks that have been required, driven by the budget at NREL?

Ms. ERVIN. This last year it was very disappointing to see what was happening at NREL. The energy and water appropriations were reduced about 33 percent. Now that translated to a decrease at NREL to about 29 percent.

Mr. SKAGGS. And I should state for the record that our acronym is the National Renewable Energy Laboratory.

Mr. REGULA. Located in Colorado.

Mr. SKAGGS. I believe so.

Ms. ERVIN. That also, the 29 percent decrease could have translated directly into a comparable or even greater percent increase in staff reductions. It was slightly lower because of the various administrative initiatives that the Director, Charlie Gay, put in place in cooperation with my office. Having said that, they have still lost 226 staff out of nearly 900, most through voluntary buyouts. There was an aggressive program to do it in that way, but that's still a significant staff reduction.

I will tell you that it has been a painful year for the laboratory, I think, because it brought back many memories of some severe cuts that you know well about in the first years of the Reagan administration. As I have heard it, about 80 to 90 percent of the staff were lost very quickly at the laboratory in those years. So there's still a number of staff that remembered those deep cuts and we're very concerned about the prospects this year.

There is fine work going on at the world's premiere renewable energy laboratory, and Charlie Gay and my office are doing everything possible to work with those existing funds, to use private sector money as quickly as possible in order to minimize the effect of the cuts. I will say the President's budget for Fiscal Year 1997 does bring the level of funding back up close to the 1995 levels.

Mr. SKAGGS. Are you able to give us a sense of, since you obviously have a deep understanding of priorities for NREL's work, what particular technologies suffered for the cuts? What are we putting on hold or losing in these reductions?

Ms. ERVIN. I'd like to submit that for the record if I might. We did go through a series of exchanges, many discussions, as you can imagine, with the management and the program managers. Some of the cuts we have very little control over, of course, because of the language or the direction of the cuts; others, there was discretion, but we needed to balance the cuts across the portfolio. I'd be happy to provide that information for you.

[The information follows:]

CONSEQUENCES OF BUDGET REDUCTIONS AT THE NATIONAL RENEWABLE ENERGY LABORATORY(NREL)

The impact of budget reductions on the National Renewable Energy Laboratory(NREL) are described in the following two parts; a) a summary of the work force reductions necessary to meet the $70 million FY 1996 budget cut, and b) a sampling of the impacts on individual NREL programs as a result of the FY 1996 budget cuts.

(A) Work Force Restructuring

NREL received $238 million in operating funds from the Department of Energy (DOE) in FY 1995. In FY 1996, it is estimated that total operating funding will be $167 million, a reduction of approximately $70 million or 30%. To absorb the large reduction in funding, the Laboratory made comparable reductions in the two major categories of funding allocations: internal operations and external contracting, which are nominally evenly divided as recipients of funds. NREL significantly slowed subcontracting activity with its external industry and university partners. At the same time, the Laboratory announced a work force reduction in November 1995, to begin lowering labor-related costs to bring them in line with the decreased FY 1996 budget.

The impacts of the work force downsizing have been substantial. Overall, 203 employees have left, or will leave, NREL employment under the work force restructuring program, or 23% of the work force employed on December 31, 1995. One of the key goals in work force restructuring has been to lower the cost of administrative operations by reducing the number of managers and staff in administrative areas to preserve the maximum productivity of research and development efforts. This goal has been accomplished. However, of the 203 employees who have left employment, 91 (45%) were from the research areas, leaving many of key research programs with a skeleton staff of scientific and engineering talent necessary to achieve the national goals established for renewable energy technologies over the next several years.

(B) Impacts of FY 1996 Budget Cuts on Selected NREL Programs

Individual program funding changes beween FY 1995 and FY1996 are summarized below. The assessment of the individual program impacts from reduced FY 1996 budgets focuses on programs funded by the Energy and Water Development appropriations, which represent 75% of laboratory funding. This assessment is based on actual program funding allocations received from DOE for those programs funded under the FY 1996 Energy and Water Development and Interior Appropriations bills.

Photovoltaics (PV)

- Staff was reduced by 18% from the FY 1995 level. This has resulted in reduced activities in materials and devices research (crystalline silicon, high efficiency solar cells, and thin films), measurements and characterization (including performance and qualification testing of modules), and subcontract project management.

- Specific research projects were reduced in scope (e.g., elimination of a task to study highly defected regions in multicrystalline silicon samples from industry and curtailing of high efficiency device research in III-V alloys), and it is anticipated that there will be a reduction in the number of PV material, cell, and module samples characterized for subcontractors and others in the PV community.

Impact on Key Milestones:

- A 6 to 12 month delay is anticipated in several of the efficiency milestones in the program as a result of the reduced scope of research activities, both in-house and subcontracted. These include milestones for copper indium diselenide and cadmium telluride power modules, and for III-V alloy tandem solar cells. While the overall goals of the new DOE National Photovoltaics Program Plan are not yet affected, there is a reduced probability of meeting the longer-term (1998-2000) goals in the plan with the reduced budget in FY 1996.

National Impacts:

- The Laboratory will be unable to honor its full commitment to the multiyear, cost-shared subcontracts with industry in the Photovoltaic Manufacturing Technology (PVMaT) and Thin-Film PV Partnership projects. This may impact the industry's ability to attract further investment for scale up of manufacturing facilities.

Wind Energy

- In anticipation of reduced budgets, the Wind Program cancelled plans to add 10 staff positions in FY 1995. This has reduced the ability to meet Program milestones in all areas of the Program. Key positions in the areas of Certification Testing, Avian Research, Power Electronics, Systems Analysis, and Resource Assessment have not been filled as originally anticipated. To compensate, other research staff have been supporting these mission critical areas, adversely impacting base program requirements.

- In addition, as a result of the NREL-wide staff reduction, the National Wind Technology Center (NWTC) is losing two key research staff with irreplaceable experience, which will result in serious future impacts to the Deployment and Avian Research areas.

National Impacts:

- In FY 1996, funding was eliminated for a major Wind Deployment project. This project was initiated in FY 1995 and was originally planned to be funded at $50 million over 5 years. Given the high level of uncertainty and risk aversion in the electric utility market, this could delay large scale deployment of Wind Technology in the U.S.

- Reduced FY 1996 budgets available for subcontracting in Turbine Development will have a long-term impact on technology improvements necessary to maintain a competitive advantage in future world markets. The Wind Program has had to make contingency plans in anticipation of further cuts in this area, such as reduced number and scope of contracts.

Biofuels Program-Impact on Research Progress

- Elimination of thermochemical biomethanol and biocrude projects
- NREL's continued operation of a new thermochemical pilot plant is in question
- Support for university and industry subcontracts dramatically decreased
- NREL Research significantly delayed
- Pretreatment research will be delayed by one year due to funds limitations
- Research progress in Zymomonas as an ethanol producer will be slowed
- Second-generation ethanol producer development will be eliminated
- Cellulase catalyst development will be delayed by 1-2 years due to research scale back

Impact on Commercialization

- It is estimated that biomass ethanol commercialization will be delayed 1-2 years, and that biomass ethanol produced by 2000 will be cut in half, from 500 million gallons to 250 gallons
- The budget cuts eliminated 75% of NREL's R&D 100 award-winnning Zymomonas team and delayed commercialization of Zymomonas by at least 2 years
- Budget cuts to non-Amoco industry industry projects significantly decreased partner diversification
- Biodiesel commercialization delayed; ie: Illinois CRADA support funds halved.
- Thermochemical biomass-to-fuels option eliminated as a commercial option.

Fuels Utilization Program

- Projected Impacts on program goals and tasks
- Program goals have been adjusted to account for the lower funding level in FY96.

Progress will still be made in achieving the key mission milestones, but at a much slower pace.

National impacts:

- FY95 has been a transition year for demonstrating and transferring alternative fuel technology to the U.S. marketplace. Commercial alternative fuel vehicle technologies were being introduced at an accelerated rate with visibility to the public at an all-time high. Without sustained momentum in this area, the chance for a permanent marketplace acceptance of the technology will be greatly diminished, thus risking investment from prior years.

- In developing new technologies, the reduced funding will be reflected most of all in the loss of leveraged funding that has been a large part of the alternative fuel R&D effort. The DOE activity in this field attracts direct funding support from industry to DOE/NREL (approximately $0.65 per dollar in FY95) and an undetermined support level within individual companies simply because of the presence of a DOE program. The decreased interest in this field reflected by the reduced budgets will likely have serious impacts on industry's participation in pushing commercial development.

Municipal Solid Waste Management Program

Impact on program goals/tasks:

- Eliminates our ability to cooperate with the international community; state, regional, and local governments; and scientific and engineering societies. This also eliminates our ability to support university research programs.

- Eliminates non-regulatory federal work for state, regional, and local governments in solving their MSW problems at a time when they are faced with complex issues such as flow control and meeting the mandated rates for recycling and diversion. This will increase costs and delay environmental improvements.

- Research to control dioxin emissions showed the ability to meet new EPA regulations with an acceptably low-cost retrofit. Only Phase I of three phases was funded and completed. Phases II and III would have helped prevent closure of 25 waste-to-energy facilities, loss of jobs, loss of electric generating capacity, and loss of waste diversion from landfills.

- Completion of a life-cycle analysis of waste management options will be severely delayed or cancelled. The project, co-funded with EPA, is supported by many industry trade associations. The results are sought by public waste managers to improve their decision making and reduce the cost and environmental impact of waste management choices.

- Activities to commercialize the co-firing of refuse derived fuel with coal will cease. These activities are supported by the plastics and paper industries and others as a means to significantly increase the beneficial use of non-recyclable materials currently going to landfills.

- A goal of the President Clinton's Climate Change Action Plan was to reduce greenhouse gas emissions by reducing barriers to the economic recovery and use of landfill gas, a renewable energy source. Funding for this five-year landfill project was eliminated. Research on air emissions from landfills will cease, and no data are available to guide the industry in comparing landfill air emissions to other waste management options.

- Research on the productive use of ash from waste combustion will cease. Failure to develop uses for ash will mean the continued disposal of ash in landfills at increased cost to municipalities and industry.

Impact on NREL:

- The program will be eliminated. NREL/DOE was the only key source of unbiased information on MSW management for use by the public and local management. NREL's ability to work with key industry and public sector partners will be severely impaired, and work with the International Energy Agency will cease. Key staff hours have been eliminated and further reductions will eliminate all expertise on MSW management.

Mr. SKAGGS. I'd appreciate that and I don't want to turn it into a Ph.d. thesis kind of project, I just want to get some sense in a couple of paragraphs of what the consequences have been and will be.

Ms. ERVIN. I was just handed a note saying that Secretary O'Leary is going to be visiting the PDU facility at NREL just this Friday.

Mr. SKAGGS. Right. I wish I could be there. But we have gotten advance word, thank you. I'd also appreciate it, not for the record, but if you could just provide my office a copy of the voluntary separation agreement that was used at NREL and how the benefits were calculated. Just so you know why I'm interested, you're no doubt aware from corridor conversations at the Forrestal building there are also reductions going on at the nuclear weapons facilities around the country, and I'm interested in what sort of relative equities there are between voluntary buyouts on one side of the shop versus the other. So I'd be interested in seeing that, and, again, I don't think we need to complicate the record of this hearing with it, if you could just get back to me.

Ms. ERVIN. Okay, I'd be happy to.

RESEARCH AND DEVELOPMENT

Mr. SKAGGS. What do you say—and this is, with apologies to the chairman, a repetition of my question for your colleague this morning—what do you say to justify being in the R&D business? Why can't the private sector do this stuff?

Ms. ERVIN. If all of the elements of Economics 101 prevailed, we had the right price signal, we had minimal risk, and we had longer-term, broad public needs built into the private market signal, there would be less need for Federal R&D. That's not the case. We have all kinds of barriers. We have an increasing emphasis in the short-term profit, and, therefore, a decreased ability to meet longer-term needs. We also have different skills that we bring to the table. I think we have some very clear choices in this whole discussion of corporate welfare and whether or not the Federal Government should work with the private sector on research.

We can either subscribe to the old pipeline model, where the Government only does one piece of the research and the private sector does everything else, in which case a lot of technologies never get to the market or our foreign competitors snatch them up. Or we can decide, as many, many have decided, that the most productive way to deal with meaningful research is to work together in a partnership.

I'm reminded of very interesting recollections by John McTague, Ford Motor Company, who used to head up, as you may know, President Reagan's Office of Science and Technology Policy. In the very early years of President Reagan's administration there was a sharp delineation along the pipeline model and very stark views of corporate welfare. Over the next eight years that theory gradually evolved to something approaching what this administration is supporting because we realize that research is much more productive in a partnership arrangement.

I did mention in my opening comments a model that I'm very fond of using, and that is from Dr. Burton Richter, who was president of the American Physical Society. And he also discards the old linear model that gets very limited results and contrasts it with a much more productive model, which is a double helix. That means that you have a lot of interaction feeding back from the marketplace to the laboratory. It's the epitome of the kind of research that we do in our programs here and out at the National Renewable Energy Laboratory that is producing the dynamite results that we see today.

Mr. SKAGGS. Your statement says that by the year 2000 the investment contained in the Fiscal Year 1997 budget request will more than pay for itself in the value of energy cost savings than [sic] every energy consumer in our Nation will receive. I assume the "than" should be "that."

In any case, a dramatic proposition of payback which makes me think that, can the private investment markets really be so shortsighted that a three-year payback isn't enough enticement to get them into some of these things?

Ms. ERVIN. It's been a favorite question of mine for many, many years. When I used to work with the Conservation Foundation on pollution prevention research, we would look at the wonderful paybacks and benefits associated with pollution prevention, and over and over and over we'd hear again, "Why don't private companies do it themselves if they have such strong incentive?" Again, it's back to Economics 101. Maybe it's Economics 102, where you get into all the reasons why the market theory doesn't work in practice. You don't have the right price signal. There's a tremendous incentive to postponing work, even if there's a three-year payback, which seems short, but it's a very long time for some private investment decisions.

Often you don't have information. I'm reminded of an example from Massachusetts a number of years ago, where a company was going to shut down one of its less productive plants in a small town. That town was going to lose 300 jobs. The State energy office went to that plant and did an energy audit and found that they could save significant amounts of money if they only implemented the audit. The company officials still decided not to do that. It was only when the State worked with the utility, and maybe a third entity, to bring no-cost financing to the plan, allowed them to repay it through their energy savings, that they've said, okay, let's do it. It's now the most productive plant in the chain, and they saved all 300 jobs.

Those barriers are real. Market theory works well in theory. It doesn't always work in practice, and that's what these problems are about.

EXPORT PROMOTION

Mr. SKAGGS. If I can ask one additional question, Mr. Chairman—I have to follow Mr. Dicks over to the Intelligence Committee.

You and I have spoken outside the hearing context of potentially teaming up with some of the interests in the Commerce Department and the State Department for export promotion and demonstration of our solar technologies, perhaps hosts abroad which have extraordinarily high energy costs. Have we made any progress in getting the folks at Commerce, State and perhaps NREL talking to each other about doing something like that?

Mr. GINSBERG. If I may, I'm Mark Ginsberg, for the record, from the Federal Energy Management Program.

We've been working with the State Department and the embassies in applying some of the technologies, particularly for the new Berlin embassy, among others. We are doing the embassy in India as a model to try to bring the private sector examples of what can be done to the State Department facilities.

So the Federal Buildings Office at the State Department expressed great interest. We've applied some of the NREL and other lab technologies.

Mr. SKAGGS. Great. I'm glad to hear that. I think there's probably even more potential there to be exploited.

Mr. Chairman, our other subcommittee being Commerce, Justice, State, we hear from Dick Nuce at State about how pressed he is to maintain and operate buildings and how eager the Commerce Department is to export U.S. technology. I was trying to make sort of a triple bank shot with all of this. [Laughter.]

Mr. REGULA. What if they put it into the specs? They must bid these embassies. When they build a new one like Berlin, do they write energy efficiency into the specs?

Mr. GINSBERG. We've been working with them to apply those specifications and to try to apply a new generation of technologies. A lot of the embassy buildings are both historic and remodeled rather than brand-new, but we are working both on new and renovated buildings.

Mr. SKAGGS. As I understand it, particularly looking at solar, some of the countries where the retail energy costs are highest are the most susceptible at exploiting solar energy technologies, and if we can do a little demo of what the U.S. sector is able to build and sell, it all comes together.

Mr. GINSBERG. Let me also just add, if I might, one of the very interesting parts, only 45 cents per kilowatt hour in some of the embassies compared to 10 cents here, but the idea, as you say, of demonstrating it and of using it for security purposes, so that they'll always have some electricity, some running water, and try to avoid any of the problems we've seen in the past.

Ms. ERVIN. Mark, I'm glad you mentioned that because one of the figures that is truly startling for me is from the insurance industry that says that about 10 percent of the total payouts in this country are due to power failure. There's a significant market here for efficiency and renewable technologies to shore up that investment, and we now have a collaborative with the insurance industry to do just that. In fact, we're doing a demonstration of many of those technologies out at NREL later in the year and inviting the major insurance industries to participate.

Mr. SKAGGS. Thank you, Mr. Chairman. Excuse me for having to leave.

Mr. REGULA. You'll have questions for the record?

Mr. SKAGGS. Probably.

Mr. REGULA. Okay.

Mr. SKAGGS. Thank you.

ALTERNATIVE FUEL VEHICLES

Mr. REGULA. What has been done to ensure that alternative-fueled vehicles are incorporated into the Federal fleets? Could this not be accomplished through an Executive order rather than with money in DOE's budget?

Ms. ERVIN. Last year we discussed this very topic, and I will give you an update on the Executive order. We did move ahead with that. It did get waylaid during the various discussions on the resolutions. OMB had its hand on that, but the Executive order is now out for agency comments and due date is, I believe, April 16. That's today.

Mr. GROSS. It's today.

Ms. ERVIN. It is today?

Mr. GROSS. Yes, ma'am.

Ms. ERVIN. So we hope to receive some good news in moving ahead. The Executive order, as you know, then does require the agencies to meet their responsibilities using their own funds and not Department of Energy funds.

FEDERAL ENERGY MANAGEMENT PROGRAM

Mr. REGULA. Could you not use the Executive order approach for the Federal Energy Management Program?

Mr. GINSBERG. Well, interesting that you say that; we do have an Executive order that requires the agencies to achieve energy savings, but as with many other things, priorities get in the way. And the issue is the economics. What we do is help queue up projects, negotiate them, make the information readily available, and bring in private sector financing to do the building renovation that's required. That takes core capability of staff inside the Government. Talk to the utilities, talk to the energy service companies, and they'll tell you that's what we need. So we are getting private sector funding involved, but it can't just be by fiat. It's got to be with some tools and resources that we provide.

Mr. REGULA. Are most of your projects based on private sector matching funds?

Mr. GINSBERG. In the past the Government has appropriated its own funds, and, frankly, you get more dollars back when you appropriate funds, $5 typically for every dollar that you invest in energy efficiency. When you get private sector funds, you get less back because it has to pay the overhead and the profit.

But, typically, now what we are doing, because appropriations are way down——

Mr. REGULA. Right.

Mr. GINSBERG [continuing]. In the other agencies, it's getting utility incentives in the performance contracts and trying to expedite the procurement of that, although Federal procurement is a labyrinth, as you may know, and we're trying to streamline it and make it simpler, faster, better, cheaper to get those projects in place.

Mr. REGULA. Well, if you have private sector money, isn't it more likely that these are going to be pragmatic projects because people want results?

Mr. GINSBERG. They all have to be cost-effective with paybacks of 10 years or better, and when we do that, we'll get, as I say, typically $5 back for every dollar that you invest.

Ms. ERVIN. One of our top priorities is to achieve as many of these Federal energy savings through the private sector as possible. We want to dramatically increase that as a mechanism, and I sometimes get impatient at how long it takes to lay out that infrastructure throughout the country, how to work with our contract mechanisms to do it, but I have become convinced that we are pushing it as aggressively as we can.

The increase that we have in this budget I think is really modest for the kind of results we're going to get through ESPCs, Energy Savings Procurement Contracts. I think for the next couple of years we need to spend a little money to make a little bit of money, and as that system flourishes and as we get reimbursements for our work and that's beginning to develop, then we'll be able to taper off some of the Federal efficiency fund money.

Mr. REGULA. Are Federal agencies looking, where they own the buildings, for ways in which they can make their buildings more energy efficient?

Mr. DIVONE. Pardon?

Mr. REGULA. I say, are Federal agencies that own the buildings that they occupy, working with you to evaluate their buildings to see how they might make them more energy efficient?

Mr. DIVONE. Part of the program is to get training materials, evaluation materials, and those sort of things out to those other organizations, other agencies, so they can do that. And, again, both with Federal buildings and with the private sector, it's a matter of getting their attention, showing them what the answer can be in terms of economic savings, and provide the materials, so that they can run those calculations. Otherwise, it doesn't move by itself.

Mr. GINSBERG. If I could point out, the same thing is true in commercial buildings as in Federal. You have to have somebody knowledgeable in the building who knows what to do to make the project happen. It can't just be somebody from the outside who comes in. That's not unique to the Federal sector. When The Washington Times, for example, did energy efficiency in its own building, they had an energy manager who identified the project and then they got the investment needed to make the change. And that's what we have to do. It takes expertise.

Mr. REGULA. Well, isn't there an Executive Order in place at the moment? Maybe it's ignored, but it's there.

Mr. GINSBERG. It's being applied, and it gave us great incentive, but it still requires the capabilities of onsite managers. And as budgets are cut back, energy managers in Federal buildings are reduced. That's why our work is even more important than ever.

Ms. ERVIN. At the Department of Defense their appropriations for energy management fell last year from $170 million to $75 million. Now here's a department where they estimate that they are going to save more from energy savings than all the base shutdowns——

Mr. REGULA. Why wouldn't they say, we'll spend our own money, because we're going to save money?

Ms. ERVIN. It takes a combination.

Mr. GINSBERG. It also takes appropriations.

Ms. ERVIN. We want to work this program as aggressively as possible with as few Federal dollars as possible. I've come to learn the hard way that it is often building by building, agency by agency, and we're at a very critical period now where we're developing a corps of expertise and familiarity and acceptance. Just as obstacles that I referred to in the private sector—if it makes so much sense, why don't you do it—there are lots of real obstacles to it. We're trying to break them down. The program will not last indefinitely at this level, but we've got to make the investment now if we want to get the savings.

Mr. REGULA. Well, it seems like this sort of repeats year after year. How long have we had this program, 20 years?

Mr. GINSBERG. But it's been a million dollar program through most of the eighties. It only recently increased—I've been here four years, and it increased from $4 million up to the levels now at the Department of Energy. The other agencies face the same difficulty.

We believe that we can give you the return on that investment, that the savings will begin, but we've got to, as Christine has pointed out, accelerate the pace, get model solicitations in place, get good examples, like the New Mexico initiative where we negotiated the deal; we had to get the utility together; we had to get the base commander enthusiastic. And it takes time and effort, and when we do, we'll see these efforts multiply.

Mr. REGULA. Mr. Nethercutt?

BUILDING STANDARDS AND GUIDELINES

Mr. NETHERCUTT. Thank you, Mr. Chairman.

Welcome, ladies and gentlemen. Thank you. I'm sorry I missed your opening statement. I had previously a chance to go over your statement and budget request.

Over the last 25 years we've had a doubling of energy efficiency in residential buildings. Does that comport with your findings as a general proposition?

Mr. DIVONE. Yes.

Mr. NETHERCUTT. I notice in your budget request funding levels for building standards and guidelines, Fiscal Year 1995, $21.26 million; Fiscal Year 1996, $14.23 million; Fiscal Year 1997, $23.85 million. It looks like a change up of $9.62 million.

Your request was funded under the codes and standards program to improve the use of building efficiency codes; is that correct?

Mr. DIVONE. That's correct. There's also another activity which I can get back to.

Mr. NETHERCUTT. Okay. What I'm driving at is I'm wondering what efforts will you undertake within this program? What do you intend to do with regard to that increase?

Mr. DIVONE. In the building standards part, the bulk of that money are grants—and bulk of the increase—are grants to States and they have quite a bit of flexibility in what they propose us to do but it's basically programs that they need in order to train building code officials, train builders, fix problems in the code, implement the code. States have a great deal of flexibility in what they do. Right now there are many States where the codes are not implemented very well or not implemented at all. The building code official typically has 15 or 20 minutes when he's at a residential building and he's worried about fire and safety and these sorts of things.

So the ability to do an energy code and have it work is very difficult. We do things like supply them with simplified computer models, and, in fact, in order to save on our expenses and whatnot, there are a number of industries that like energy efficiency and more efficient buildings.

And, in fact, that is a coincidence because I have an example with me of what's called MEC Check, which is a computer program that both the builder or the code official can use to very quickly determine whether it meets code, and a number of other insulation manufacturers are distributing these at their expenses because it's in their own interest to do so.

HOME ENERGY RATING SYSTEM

The second program that's in there that has grown quite a bit in our budget, or we are requesting growth in our budget, is the Home Energy Rating System, and that is a voluntary program. We, or someone, puts an energy label on nearly every product, whether it's refrigerators or insulation, and so forth, except the building itself, the most important thing. It's a very difficult, very complex problem. We've been working on it with a whole collection of stakeholders for about four years. We have—that group of stakeholders came up with proposed national guidelines, so that a rating a house receives is—while there's flexibility in the States it's roughly the same, because the financial community goes nationwide, the mortgage community. So they have a rough idea that these are the same.

We ran into a couple of glitches on it. We should have that rule proffered by June or July of this year. The States can then adopt it voluntarily; industry can adopt it voluntarily, and that way it puts value in the marketplace. That way the mortgage companies know whether it's an efficient house or not, how much energy it will use. There are many mortgage companies out there with new financial products that they want to use, whether it's upgrading existing houses or building new ones.

And in some of the State grants I mentioned before, several States are proposing to tie the two together in the sense that, if a rater is going to go there for market-driven reasons, because that builder can sell his house better because it has a rating that shows it's energy efficient, that's prima facie that it would match, that it would be better than some energy code, in which case they wouldn't have to spend the money for a code official to do it. So there's an interlock between a standards-type program and a voluntary program, and, of course, we hope the voluntary program is the one that really causes the high efficiency.

Mr. NETHERCUTT. When you're setting new or revised efficiency codes, to what extent do you consider the consequences to the builder for the cost of that house? Is that something you factor in, and if so, to what extent do you do that?

Mr. DIVONE. We try to do that very much. I'd like to back up for just a moment in the sense that there are no Federal residential energy codes. That's a county or city or local decision. What we do is we do analyses. We in the past had provided those to organizations like the Council of American Building Officials, CABO. They, then, debate it and decide whether to accept our idea or thoughts or others, and there are forums and people argue and debate it. Other people present ideas in opposition. If CABO, or a similar organization, decides to adopt it, then each county can decide whether to adopt it, or each city, whether to adopt that code or not or modify it or not.

I might add that in the past year, during 1995, we, in fact, did not propose any increases under that voluntary mechanism. We had a self-imposed moratorium on building codes ourselves because we knew the existing ones were not being implemented well and tried to devote our attention with the State grant programs to get what's out there implemented right. And that was the piece of the feedback we were getting from the building industry.

There are arguments as to how much it costs to improve the house not built to an energy code to reach energy levels. There are large debates on that. A lot of it has to do with the knowledge base of the builder in terms of how it can be done. You can do it very, very expensively or you can do it very economically. And that's part of the reason we have those new programs on builder training in here, because for most of the builders in the U.S., there's no R&D capability, and very little technical capability. The largest builder in the U.S. has less than a 1 percent market share and closed his research and development organization a year or two ago. So getting that information out there, so it can be done inexpensively, is I think the key, whether it's voluntary systems or a local building code.

Mr. NETHERCUTT. I guess—and I appreciate your response. What I'm assuming is that regulation translates into cost, and that authority from your offices results in increased cost for the consumer and/or the builder. Am I right in that? Is that an unfair statement, or might you say that any increase in cost will result in a cost savings downstream?

Ms. ERVIN. Yes.

Mr. DIVONE. That statement I would say, without reservation, that almost all of these energy improvements are cost-effective on the life cycle. The question is, are there upfront costs involved and how much?

Mr. NETHERCUTT. Right. That's what I'm concerned about.

Ms. ERVIN. Our goal is to help builders make money building and selling energy-efficient homes. So what we are trying to do with this Home Energy Rating System that will be out very soon, we hope, is to provide a financing mechanism that allows for a win/win for the builder. I'm excited about that. I think that's going to make a big difference in our whole codes and home-building industry.

Mr. NETHERCUTT. Have you received much in the way of resistance over the term of your service with the Government from builders? I'm sure from time to time you do, no matter what, but generally, are you finding people are saying, "That darned office is costing us money, and the regulatory authority that they have is driving us crazy."?

Ms. ERVIN. No resistance whatsoever. No, no.

Mr. NETHERCUTT. You're under oath. [Laughter.]

Ms. ERVIN. It varies considerably.

Mr. NETHERCUTT. Yes.

Ms. ERVIN. You find in a number of States building organizations and builders are very enthusiastic about codes, for any number of reasons. Perhaps they are able to make more money selling energy-efficient houses because they have more training programs; they have more sophisticated building techniques. In other areas it is extremely controversial. That's one reason why we really do want to move ahead with this Home Energy Rating System, so that you can combine voluntary programs with code programs in a way that makes it much easier for builders all the way around.

BUILDING CODES AND STANDARDS

Mr. NETHERCUTT. I just met with some school people out in my district who are very concerned not about the law, but the regulatory implementation of the law, that punishes them tremendously if they miss a deadline or have problems, with paper compliance. The same with OSHA; I think 80 percent of the violations are paper compliance violations. I want to see to what extent you're sensitive about the same charge against your agency as it relates to builders, homeowners and States. I wonder if you see the parallel, and if so, what are you doing to try to address it?

Ms. ERVIN. When I headed up the Oregon Department of Energy, I became very personally acquainted with the building codes issue at many different levels. One of the interesting developments for me was visiting with the code officials and the builders to explore the difficulties in actually implementing the code once it was in law. And you're right, it's not a trivial exercise. We are very interested in streamlining the codes as much as possible, so that they're easier to understand and implement at the local level.

Mr. NETHERCUTT. Have you done that thus far in your service, in your agency thus far?

Mr. DIVONE. Yes, we have.

Mr. NETHERCUTT. Do you have a record of streamlining?

Mr. DIVONE. We think we have. At least we've been trying to. And, as I said—I'm going to go back to that in a moment. Things like the computer model that I just showed you are ways to help that.

The reason I wanted to double-back is that the model energy code that the Council of American Building Officials adopted, and what-not, has two ways of complying with the code. One is a prescriptive way, so many inches of insulation, or whatever, and the other is a performance code which just says in this climate for this size house, for this set of circumstances, it's so many kilowatt hours per year per square foot, or whatever it may be. And the builder has a large amount of flexibility as to how he wants to do it.

The problem is that's more difficult if the builder doesn't know or have tools or training in what the cost of effective options are, and it's more difficult for the code official because he just doesn't look at a blueprint and stamp it. And that's where we've been trying to concentrate our attention, because it's much more cost-effective if you leave that flexibility up to the builder and the buyer as to how they want to do it.

Mr. NETHERCUTT. I don't mean to overtake my time——

Mr. REGULA. It's all right.

Mr. NETHERCUTT. Building standards and guidelines under funding schedule, under mission supporting goals, I assume that's where we're getting the $23—here it is—$23.85 million.

Mr. DIVONE. Yes.

Mr. NETHERCUTT. You go up $6.5, almost $7 million on building standards and lighting, Fiscal Year 1997. To what do you attribute that increase?

Mr. DIVONE. As I said, the bulk of the increase is for grants to the States for them to work on simplifying their codes and improving the implementation of it and implementation of the Home Energy Rating System, which happens to be listed, even though it's a totally voluntary program, happens to be listed under codes and standards in the budget structure. That currently funds six pilot States, the six HUD pilot States and a Fannie Mae pilot State, and this year, based on the language from Fiscal Year 1996, we're adding a seventh State.

As this is beginning to take off, we'll be adding another, I believe it's seven States in Fiscal Year 1997. We will be doing that for implementing Home Energy Rating Systems, providing technical support, evaluating how well they're working, and improving the systems. So that's where the bulk of the increase is. The actual internal work here at the laboratories is relatively constant.

Mr. NETHERCUTT. Well, thank you very much. Thank you, Mr. Chairman.

HOME ENERGY RATING SYSTEM

Mr. REGULA. Would you not have to educate the consumer? I wonder how many people go out to buy a house—when you get to buy an automobile, you've got your average MPGs; it's right there in front of you. But when you buy a house, I don't think most consumers really think a lot about the energy efficiency of that structure.

Ms. ERVIN. Not only that, but they don't get any recognition in the home financing for it, either, and that's why the Home Energy Rating System is so important.

Mr. REGULA. Probably not, because the financial institutions are not sensitive to that.

Ms. ERVIN. Exactly. There's never been a mechanism to document, verify, and transfer the potential energy savings when you buy a house into a break on your mortgage, and that's what this system will do.

Mr. NETHERCUTT. May I interrupt, Mr. Chairman?

Mr. REGULA. Sure.

Mr. NETHERCUTT. If I'm going to buy a house I go look at last year's utility bill, and I compare it with my old house or my neighbor's house. That's one indicator. I look up in the attic to see if there's any insulation. I see if there's storm windows. And if there aren't storm windows, attic insulation, and wall insulation, and a high bill, I'm pretty convinced that I'm going to need to do some work, but I don't get any credit for it is what you're basically saying

Ms. ERVIN. That's exactly right. It's working with Fannie Mae and the lending institutions, and what has driven us in this whole effort is, what do the financial institutions say they need in order to have confidence with a label that they can then take and translate into savings on their mortgage? This has been a long time in the making, four years of consensus work on the HERS rating, and I'm eager for it to get out.

Mr. REGULA. So you still don't have a way to put something on the window and say, this is rated so many miles per gallon? [Laughter.]

Mr. NETHERCUTT. That's the mobile home. [Laughter.]

Mr. DIVONE. Mr. Chairman, if I may, that's, in fact, what the Home Energy Rating System does. Getting that information into the real estate and purchasing infrastructure—then a buyer or a seller or a builder would get a report, and it says: this is a one, two, three, four, five, or even five-plus star house. The four-star level is keyed to last year's model energy code.

So that way it covers both older houses and newer houses, and you would get both that and the estimated utility bill. Utility bills, while I agree with you completely you can look at the insulation and the storm windows to get some idea, but the utility bills themselves, if it's a new house, one doesn't have them, and in old houses it's so dependent on a different human being's ways of doing things. This way, that house is going to have a certificate with a star on it that the consumer can understand, and it will also have dollars and a much more refined point scale than the star scale for the financial community to use, because then they can estimate how much the person is going to save on their bills compared to the average, and, therefore, what their risk is in giving them some special financing mechanism.

The Fannie Mae and other primary mortgage lenders are looking at packages, for example, upgrading existing houses, where they feel they can make money by adding additional loans because selling money is their business, knowing that they can get paid back because the energy savings will be less than the payments on whatever that upgrade was, but it has to be built into the infrastructure.

BUILDING CODES

Mr. REGULA. Do you develop model building codes that States and/or local communities can adopt, if they choose to do so?

Mr. DIVONE. Yes. As I mentioned, Mr. Chairman, what we do, or did in the past, until 1995, is we made recommendations to organizations like the Council of American Building Officials, who debated it, heard from other people, and then decided whether they wanted to adopt some particular change or not, and then the local county or city would decide whether to adopt that change or modify it, as they saw fit. And that's when it becomes an actual regulation, is when Fairfax or Montgomery County here decides to elect it. It's a very long process, too. It's about a five-year process.

Mr. REGULA. Is there any evidence that builders are marketing their product on the basis of energy efficiency?

BUILDING AMERICA

Ms. ERVIN. More and more. I'm meeting with builders, there are niches. It depends on different parts of the country. Often an interesting trend that's developing is the packaging of energy efficiency with environmentally-friendly materials in the house as well. That's also a package that is of increasing interest to consumers.

The next generation of housing that we see through the Building America consortia that you're familiar with, IBACOS (Integrated Building and Construction Solutions) and several others, that's where you bring it all together in a truly exciting way. We're looking at houses that will be 30 to 50 percent more energy efficient, that have dramatic reductions in the amount of construction debris that is generated, and, therefore, hauled off to the landfill, improved indoor air quality, for a decrease in the first cost for the consumer. That's a very nice package.

APPLIANCE STANDARDS

Mr. REGULA. Appliance standards, will there be a moratorium in 1997?

Ms. ERVIN. I certainly hope not.

Mr. REGULA. Do you think you'll get an agreement with time?

Ms. ERVIN. We're working very hard on that. I think we are demonstrating to the various groups that we're serious about reinventing this program, that there's a better way of doing business; yet, there is a real economic and national need for standards of some type for many programs.

Now Lou Divone alluded to a concept that I think is very important in the appliance side as well—is one of the innovations that we have in this reinvention process is to look at where we need mandatory standards, where they make sense, but where we could forego them in lieu of voluntary measures. Part of the buildings budget and the budget increase is to turn to market-pull mechanisms that would allow us to forego standards in some cases. We're going to need help with the consumer groups, the environmental groups, and the manufacturers to see what makes sense where, but we may be able to forego some mandatory standards in some cases if we have a sufficient market program to work the other end.

Mr. NETHERCUTT. Nothing further. Thank you, Mr. Chairman.

FUNDING PRIORITIES

Mr. REGULA. I have a number of questions for the record, but let me suggest that you look at your priorities, so that once we get our allocation, if we come back to you and say, instead of $745 million, it's going to be $500 million or $525 million, whatever makes sense in light of our 602(b), you should be prepared to tell us what works best for you. I don't want to micromanage, but we do need you to be thinking about what your priorities are, if realistically that's what's going to be available.

And, as you know, the authorizers have pressure on to reduce these expenditures. We've had to really try to persuade them not to be too Draconian——

Ms. ERVIN. Yes.

Mr. REGULA [continuing]. In what they do.

Okay, any further comments you'd like to make?

Ms. ERVIN. No. I appreciate your last comments there. We're going to take each stage as it comes. I still have a fervent hope, and shared by many of the administration, that the authorizing committee will come to see that these programs are truly prudent investments, particularly in times where we need to cut budgets. There's a huge payoff to these programs and huge opportunities to avoid some of the cost and the pain in other parts of the budget. I think it's a good investment in good times; I think it's an even better investment when we need to cut back on budgets, and I hope the authorizing committee will recognize that in the 602(b) allocations.

Mr. REGULA. Well, I would assume you have a little missionary work to do with the authorizers. [Laughter.]

Ms. ERVIN. Thank you.

Mr. REGULA. The hearing is adjourned.

[The information follows:]

ADDITIONAL COMMITTEE QUESTIONS

GAO Analysis of Available Funding from Prior Years

The General Accounting Office has conducted an analysis which shows that you had nearly $19 million in unobligated funds at the end of fiscal year 1995 and another $696 million in uncosted balances inn existing contracts. The GAO projects that you will have at least $550 million in unobligated and uncosted carryover in 1996.

Question: Why does your budget only provide a $15 million offset from prior year balances?

Answer: The $15 million offset from prior year balances reflects the maximum practical amount of funding which we believe could be made available based on prudent management techniques such as the review and close out of expired or inactive contracts. The nature of our programs includes a built-in lag - our balances are close to what one would expect based on both OMB and CBO outlay models. The Energy Efficiency programs will continue to be scrutinized with the objective of identifying any additional balances which could be proposed as an offset to the FY 1997 Budget.

Question: Obviously, some of the carryover is for bona fide needs, however, I ask that you 'conduct a careful review of all your uncosted balances and provide the Committee, for the record, an estimate of the amount that could realistically be applied to offset your new budget authority requirement.

Answer: Again, we believe that $15 million is the best estimate of prior year funds which could realistically be applied to offset the budget. We believe the Committee would agree that it would not be cost effective to indiscriminately reduce on-going research contracts for the sole purpose of providing an offset to the budget.

Plant and Capital Equipment

Question: What would be the impact of funding plant and capital equipment from within individual program costs for energy conservation research and development, subject to the established reprogramming guidelines

Answer: We fully support the concept of funding capital equipment from within the operating expense portion of the Energy Conservation research programs. It would help to ensure that programs can function with an optimal level of equipment at minimum cost. Capital equipment requirements are often not easily predicted, due to factors such as varying operating life-spans; and new or varying research opportunities which require a basic complement. The current funding process can result in the lack of equipment when it is needed. If capital equipment could be funded from operating expenses, the actual funding obligation would be recorded under Capital equipment accounting codes. Therefore, the Department would continue to track the funds consistent with the current procedures. The improvement would be the increased latitude to make such purchases to support the overall. research objective. Prudent management of capital equipment purchases would be enhanced because managers would most likely want to minimize the use of operating expenses for only the most important and necessary purchases.

We do not see any benefit to making this provision subject to established reprogramming guidelines. Historically, the Energy Efficiency research programs do not require large amounts of capital equipment funding and, therefore, it is expected that in most cases capital equipment requirements would be within reprogramming guidelines. However, in programs such as Transportation Materials Technologies, $1,000,000 is requested for capital equipment. Although this represents less than 3 percent of the total funding requested for this program it exceeds the reprogramming threshold of 10 percent or $500,000 and would constrain the purchase of needed equipment. We recommend that in lieu of reprogramming thresholds, the Committee consider special reporting in the budget with a schedule for overall actual and planned capital equipment purchases from operating expenses.

Finally, we believe that plant requirements should be exempt from this procedure and should continue to be included in project data sheets and subject to specific appropriations.

Question: We did this last year for the Industry Technology programs. How is it working?

Answer: To date the Department has implemented only one request for capital equipment to be funded from operating expenses for the Industry Technology programs. This first request for capital equipment was recently initiated following established reprogramming guidelines, whereby we have requested $45,000 of operating expense funds to support the Materials and Metal Processing program. This action is expected to be implemented in May, 1996. We will follow up with Committee staff on the results of this action.

Electric Vehicles

Question: On page 285 of your budget you say you will be conducting consumer market testing of electric vehicles to obtain data on performance, reliability and costs. How much will this cost and why is the Federal Government involved?

Answer: The program conducts field testing and evaluation of pre-production electric vehicles to determine vehicle performance, user acceptance, reliability, and life cycle costs. This is done in partnership mainly with electric utilities and other stakeholders on a 50 percent cost share basis. The field testing and evaluation portion of the program costs approximately $1,600,000 per year to test approximately 50 vehicles and gather sufficient data for a proper analysis. The data collected under the program is used to measure the progress of technology development and provides essential metrics for the Department's electric and hybrid vehicle core research and development programs. A secondary use of the data is to assist both the public and private sector. in determining the viability of electric vehicle for meeting fleet requirements under the Energy Policy Act of 1992. The information is provided to interested parties through the Alternative Fuels Hotline, the Alternative Fuels Data Center, and the Electric Vehicle Data Center.

Question: What is the Exploratory Technology Research program (budget p. 296) and why is funding for this program increasing from $1,850,000 in 1996 to $2.5 million in 1997?

Answer: The Exploratory Technology Research (ETR) program provides the applied research base which supports the development of advanced battery systems supported though the U.S. Advanced Battery Consortium for electric vehicle applications. The battery technologies being developed are in different stages of maturity; test results and performance projections appear promising. However, the successful commercialization of these technologies is not assured. There is, therefore, a strong need to carry out exploratory research on new battery systems, applied research to develop improved materials and components, and supporting research to characterize the phenomena that limit the lifetime and performance of the systems under development

The additional $650,000 requested for FY 1997 returns the ETR program to its FY 1995 funding level. This will prevent the termination of research projects at Lawrence Berkeley, Los Alamos, and Brookhaven National Laboratories, and at various universities, which address the development of improved materials and components for electric vehicle batteries.

Question: How is the Basic Energy Sciences program, which is funded in the Energy and Water appropriation bill, involved in the Exploratory Technology Research program and what funds are included in the Energy and Water budget request for this program?

Answer: Within the Office of Transportation Technologies, the ETR program provides the applied research base which supports the development of advanced battery systems for electric vehicle applications. Within the Office of Basic Energy Sciences (BES); the Division of Chemical Sciences supports fundamental research for new battery technologies, focused on the non-automotive market. The underlying science for these programs is nearly identical; however, the added complexity and size of an electric vehicle battery introduces many new technical and engineering issues. BES programs also support basic research related to materials and chemical processes involved in battery systems. For example, new battery materials under development at Oak Ridge National Laboratory for non-automotive applications may be scaled-up to automotive-size batteries.

The ETR and BES programs are integrated through joint workshops, collaborative program reviews, and coordinated proposal selections. These integrated activities have been successful in identifying new opportunities addressing a number of energy storage technologies. No funds are included, however in the Energy and Water Development account for activities specifically related to transportation technologies.

Partnership for a New Generation of Vehicles

Question: much money in total is in the energy conservation budget request for the PNGV initiative? How does that compare with funding in 1996?

Answer: The FY 1997 Congressional Budget Request for PNGV, within energy conservation, is approximately $148.8 million. In comparison, the FY 1996 conference mark supports approximately $99.8 million for PNGV within energy conservation.

Question: Briefly describe the initiative.

Answer: The PNGV is a partnership between the Federal government and the U.S. Council for Automotive Research (USCAR)--a consortium of Chrysler, Ford, and General Motors. The objective of the partnership is to develop technologies for a new generation of vehicles with dramatically improved fuel efficiency. Achieving the objective is linked with three interrelated goals: improved manufacturing, implementation of innovative technologies in conventional vehicles, and development of production-prototype automobiles incorporating breakthrough technologies that allow operation with up to three times the fuel efficiency (80 mpg) of today's six-passenger automobiles while maintaining all other key attributes, including emissions control, safety, performance, and cost. PNGV's schedule targets the year 2004 for completion of the first production prototypes.

Question: To what extent are other parts of the Department or other Federal agencies funding this initiative?

Answer: FY 1996 funding is provided by the following Departments and Agencies:

- Department of Commerce (DOC)	$ 56.70 million
- Department of Defense (DOD)	$ 33.87 million
- Department of Energy (DOE)	$122.60 million
- Environmental Protection Agency (EPA)	$ 6.00 million
- National Science Foundation (NSF)	$ 53.28 million

For FY 1997 budget requests have been submitted for the following Departments and Agencies:

- DOC	$ 38.20 million
- DOE	$163.30 million
- DOT	$ 5.00 million
- EPA	$ 17.20 million
- NSF	$ 56.27 million

These figures include estimates that are not directly controlled by PNGV plans (e.g. DOC and NSF estimates) and differ slightly from figures in the President's budget. We are continuing to refine our estimates. It is our understanding that in FY 1997 DOD is continuing work on electronics and electric drive trains directed at mission objectives, including electric vehicles and related technologies. While this work may ultimately benefit PNGV goals, it is not currently coordinated within the PNGV framework.

Within DOE, the Office of Defense Programs and the Office of Energy Research are funding the PNGV initiative, in addition to the Office of Energy Efficiency and Renewable Energy. The following table shows the funding breakout by organization within DOE for FY 1996 and the FY 1997 budget request.

DOE BUDGET FOR PNGV ($millions)

Fiscal Year	**1996**	**1997**
GOAL 3		
Hybrid Systems R&D:		
-Transportation Technologies (OTT)	$36.7	$52.1
-Defense Programs (DP)	1.8	
Gas Turbine Engines	6.0	8.0
Electronic Devices	3.0	5.0
High Power Devices	8.1	17.0
Fuel Cell R&D	21.9	30.4
Propulsion System Materials	7.8	6.5
Lightweight Vehicle Materials:		
-OTT	10.9	19.4
-Industrial Technologies (OIT)	3.1	5.3
-Energy Research (ER)	2.1	3.2
-DP	2.8	
Light Duty Engines (Compression Ignition Direct Injection - CIDI)	4.0	8.6
GOAL 2		
Near-Term Improvements		
-OTT	1.5	1.8
-ER	2.1	3.0
-DP	1.6	
GOAL 1		
Manufacturing		
-DP	7.0	
-ER	2.2	3.0

Fiscal Year	1996	1997
TOTAL	$122.6	$163.3

NOTE: - FY 1996 budget for OTT and OIT is based on the conference mark.
- FY 1997 budget is based on DOE's Congressional Budget Request.

Question: How many PNGV projects are included in the energy conservation budget and what are the major areas of emphasis?

Answer: For FY 1996, there are over 60 projects that support PNGV. The major focus of these projects is research and development (R&D) of fuel cells and hybrid propulsion technologies. These projects also support R&D for piston engines, combustion efficiency and emissions, lightweight materials, and ceramic technologies.

Question: How many are included in other DOE programs and what do they involve?

Answer: Within the Department of Energy, the Offices of Defense Programs (DP) and Energy Research (ER) also support the PNGV initiative with research activities consistent with each office's mission. In fiscal year 1996, DP is supporting approximately 31 PNGV-related cooperative research and development agreements (CRADAs), focusing principally on research dealing with advanced manufacturing, advanced materials, and computational analysis. ER is supporting approximately seven CRADAs, with research focused on advanced manufacturing, emissions measurements and controls, and lightweight materials.

Question: How many are included in other Federal agencies and what are they?

Answer: At this time, the Department of Commerce is developing a comprehensive database of all PNGV projects in coordination with the U.S. Council on Automotive Research. The completion date for this database has not yet been determined.

Question: For the record please provide a listing, in priority order, of all the various projects in the PNGV initiative, along with fiscal year 1995, 1996 and 1997 cost estimates by project. Also note the responsible Federal Department element and the budget activity and subactivity for each.

Answer: The Department of Energy's PNGV project areas and the associated budgets for fiscal years 1995, 1996 and 1997 are shown in the previous table. All of these project areas are considered by industry and government to be critical to the success of the PNGV, as conceived, and are therefore, all of high priority. The Department of Commerce, can provide corresponding information for the other participating government Departments and Agencies.

Hybrid Vehicles

Question: The hybrid propulsion systems budget is targeted for an increase from $36 million in 1996 to $51,650,000 in 1997; turbine energy technologies increase from $6 million to $8 million; high power energy storage research increases from $8 million to $17 million; and research on semiconductor controls increases from $3 million to $5 million (budget p. 298-300). What individual programs account for all these increases?

Answer: The increase of $15.7 million for hybrid propulsion systems will be used to sustain the development program. This effort involves 50 percent cost-shared contracts with each of the three major automotive firms as they move into the more costly hardware development phases. The $2 million increase for turbine technologies supports the development and manufacture of ceramic component technologies critical to increased efficiency, reduced cost, and lower weight for the gas turbine-- improvements that are necessary for the gas turbine to be viable in automotive applications that support DOE goals.

Government, industry, and the National Research Council (in its peer review of the PNGV effort) agree that one of the highest priority areas within the overall hybrid R&D effort is the development of high power energy storage technology. This technology is currently the performance limiting factor in hybrid propulsion system development and is necessary for the hybrid concept to be viable. The $9 million increase will support the development of the most promising high power storage concepts in a collaborative 50 percent cost-shared effort through the United States Advanced Battery Consortium..

The increase from $3 million to $5 million "on semiconductor controls" is to support a highly leveraged, collaborative program with industry suppliers and the U.S. Navy aimed at new Power Electronics Building Block (PEBB) technology. This technology has potential to revolutionize power control devices in hybrid vehicles; reducing cost, weight, and size of these devices.

Question: If the hybrid vehicle program were held to the 1996 funding level how would you restructure the budget? Please provide details for the record.

Answer: Holding the budget at the fiscal year 1996 level would have major detrimental effects because the increases are requested in critical areas and emphasize activities that DOE and its industrial partners agree are high priorities. Reassessment of the portfolio of priorities at reduced levels requires input from a number of other partners. However, reducing the FY 1997 request to FY 1996 levels would have to result in serious impacts from reduced emphasis on the three priority enabling technologies--gas turbines, power electronics, and high power energy storage, as well as on the core hybrid propulsion system contracts with Ford, Chrysler, and General Motors. It is likely that two or more of these priority efforts would require termination in order to sustain the remaining efforts. Program restructuring continues to give emphasis to the sharing of technologies in order to sustain critical efforts at reduced levels; but great risk would be added to the program and the probability would increase that long-range PNGV goals will not be met. Also, premature decisions to reduce the breadth of research activities would be required. This would contradict the National Research Council's recommendation to maintain a robust portfolio of R&D until the late 1997 "technology selection."

Fuel Cells

Question: How does the Proton Exchange Membrane (PEM) fuel cell work?

Answer: A fuel cell is an electrochemical device that converts the chemical energy of a fuel directly into electrical energy. The principal components of a fuel cell are two electrodes, one for the fuel (anode) and one for the oxidant (cathode), and a conductive electrolyte in between. Because the operating conditions are largely determined by the electrolyte, fuel cells are classified by the type of electrolyte used. The proton exchange membrane (PEM) fuel cell uses a proton-conducting polymer membrane as the electrolyte.

At the anode (the hydrogen electrode), hydrogen ions and electrons are formed. The hydrogen ions then travel through the electrolyte to the cathode (the oxygen electrode). Simultaneously, the electrons move through an external circuit to a load and then to the cathode. At the cathode, the oxygen, hydrogen ions, and electrons combine to form water.

The fuel for fuel cells is hydrogen. Hydrogen can be generated from methanol, ethanol, natural gas, propane, and other hydrocarbon fuels. Two fueling options are possible: (1) stored hydrogen can be provided directly to the fuel cell as a pure gas; and (2) methanol, ethanol, or natural gas can be processed (reformed) in an external reformer to provide hydrogen-rich gas for consumption in a fuel cell.

Question: How many contracts will be supported by your request of $20 million for PEM fuel cells and what, specifically, will be done?

Answer: There will be a total of 4 or 5 contracts. The three system level contracts with General Motors, Ford, and Chrysler Pentastar will be continued. These system level projects are focussed on the development of automotive-scale fuel cell systems (30-50 kilowatts). They represent the first effort by each of the three domestic automakers and fuel cell developers to integrate all of the individual fuel cell components into complete automotive-scale fuel cell brassboard systems. Under each system development effort, substantial gains have been made by domestic developers in increasing performance and in decreasing size and weight of proton exchange membrane fuel cells. Also, these contracts have addressed difficult vehicle integration, fuel cell packaging, and fueling issues.

Specifically, the General Motors team is developing a methanol-fueled fuel cell propulsion system. The 30-kilowatt (kW) brassboard system will include a methanol fuel processor system which is integrated with a proton exchange membrane fuel cell. The system will include necessary controls and sensors which are being developed under the program.

Ford is developing a 50-kW, hydrogen-fueled fuel cell system. During the last quarter of FY 1996, Ford will down select from five domestic fuel cell suppliers to one or two suppliers for development of the 50-kW fuel cell propulsion system to begin in FY 1997. Ford and its hydrogen subcontractors will be completing fabrication of an advanced hydrogen storage system, and rigorous analyses of hydrogen storage, safety, economic, and infrastructure issues.

Under the Chrysler Pentastar effort, Allied Signal will be developing a low-cost fuel cell that will be suitable for high-volume manufacturing. The 30-kW fuel cell incorporates materials research and an automotive design-to-cost approach, and will be integrated with a system controller so that performance under simulated driving cycles can be determined.

One or two cost-shared contracts for advanced automotive fuel cell systems will be awarded by DOE directly to domestic fuel cell developers. The objective of this development effort is to meet DOE fiscal year 2000 goals in support of the Partnership for a New Generation of Vehicles in terms of increasing power density, decreasing platinum loading, and decreasing overall fuel cell costs. The automakers will collaborate with DOE to ensure that system requirements are met. This procurement is crucial in advancing PEM fuel cell technology towards automotive technology goals which will help U.S. suppliers keep pace with very rapid, worldwide, automotive fuel cell advancements in Europe and Japan. If cost goals set for calendar year 2000 can be approached for automotive applications, this would help stimulate commercialization of proton exchange membrane fuel cells for building applications. If this market can be stimulated, then this in turn helps drive down the manufacturing costs for automotive applications.

Question: How many contracts do you have in 1996 and what are they doing?

Answer: There are a total of 10 contracts. As previously mentioned, the three system level contracts with General Motors, Ford, and Chrysler Pentastar will result in advancement of proton exchange membrane (PEM) fuel cell technology and development of automotive-scale fuel cell systems (30-50kW).

Under the General Motors program, Delphi Energy and Engine Management Systems is developing PEM fuel cells. It is currently validating and testing its design at a single cell level. It will begin scale up to 30-kW in FY 1997 following successful short stack assembly and testing at the end of FY 1996. It has also built the 30-kW methanol reformer (not including other fuel processor components) which will undergo tests during the last quarter of FY 1996.

Under the Ford program, each of the five fuel cell developers are currently in the process of fabrication and delivery of their short fuel cell stacks to Ford for testing. The down select decision will be partially based on these test results. Also, Lawrence Livermore National Laboratory and EDO Fiber Science are developing an advanced composite tank for storing 5,000 pounds per square inch of hydrogen on-board the vehicle. This tank, which has a specialized bladder to prevent hydrogen leakage, greatly improves on the storage density and decreases the weight of conventional pressurized storage containers.

Under the Chrysler Pentastar fuel cell program, AlliedSignal is developing low- cost fuel cell stacks. It has made significant progress in obtaining acceptable single cell performance with ultra-low platinum loadings and low-cost bipolar plates. By the end of FY 1996, a low-cost, 10-kW stack will be built.

Under a DOE contract with Arthur D. Little, a 25-kW multifuel reformer was scaled up to

50-kW. This reformer has been tested under steady state conditions using ethanol. By the end of FY 1996, transient testing which more realistically represents automotive driving conditions will be completed. A reformate gas clean-up system and a control system need to be developed.

DOE awarded three small contracts to domestic component suppliers to develop high efficiency compressors and expanders for automotive fuel cell applications. Because of the unique compressor requirements and the innovative approaches of each supplier, the contracts were initiated with a down select process to be completed after a conceptual design and hardware validation period. The development of these fuel cell system components is critical to maintaining the overall efficiency benefit of fuel cells.

DOE will be awarding three small contracts with domestic fuel cell developers to incorporate innovative designs and materials into small (<1-kW) fuel cell stack prototypes. The purpose of these small, pre-competitive industry efforts is to cost effectively and continuously advance the state-of-the-art PEM fuel cell technology. There is no duplication of effort in these innovative approaches.

Question: What would be the impact of holding funding levels at $17 million in fiscal year 1997?

Answer: Reducing program funding to $17 million in fiscal year 1997 would have major negative impact. It would be necessary to dramatically scale back the General Motors, Ford, and Chrysler Pentastar system development teams. This would likely result in putting the U.S. behind Japanese and European automotive fuel cell programs. Less than automotive-scale stacks would be delivered and they would lack critical fuel cell ancillary components (e.g., fuel systems, sensors, etc.), system integration, and controls. Since this funding level provides subcritical funding for integrated systems, some funding would be distributed for pre-competitive R&D for advanced fuel cell stack and multifuel reforming technology. Further advancements in fuel cell stack technology is critical to achieving automotive cost goals of less than $100/kW. Further development in fuel processing technology is vital to enabling fuel cell vehicles to enter the marketplace utilizing the existing infrastructure of conventional and alternative fuels. However, development of critical stack and fuel processing technology would also be severely limited based on a proposed funding level of $17 million in FY 1997. Only critical efforts on multifuel reforming could be carried out. Important components (e.g., gas clean-up system, shift reactors, etc.) of the fuel processor system could not be developed or integrated. In addition, integration of the fuel processor with the fuel cell could not be done at this funding level.

Question: Who are the industry cooperators and what is their cost share?

Answer: The team led by General Motors consists of the following subcontractors: Delphi Energy and Engine Management Systems, Delphi Electronics, Delphi Harrison, Delphi Packard, Ballard Power Systems, and DuPont. The team led by Pentastar Electronics (a Chrysler company) consists of Chrysler Liberty, AlliedSignal Aerospace, AlliedSignal Research & Technology, and AlliedSignal Automotive; it is co-sponsored by several California State agencies. Under the Ford contract, the fuel cell developers are International Fuel Cells, Energy Partners, H

Power Corporation, Tecogen, and Mechanical Technology, Inc. The Ford hydrogen infrastructure, storage, cost, and safety evaluation subcontractors include Directed Technologies, Inc., BOC Gases, Air Products and Chemicals, Inc., Electrolyser Corporation, Praxair, Inc., EDO Fiber Sciences, and Aero Tec. The multifuel reformer development contract is with Arthur D. Little and is co-sponsored by the State of Illinois and Chrysler Corporation. Three small research and development contracts for high efficiency compressors and expanders have recently been awarded to Arthur D. Little, AlliedSignal, and Vairex Corporation. International Fuel Cells, Texas A&M University, and Energy Partners have been selected for small PEM fuel cell contracts. The purpose of these small, pre-competitive industry efforts is to cost effectively and continuously advance the state-of-the-art PEM fuel cell technology.

The industry cost share for all of these contracts is approximately 20 percent which is standard for technology that is in the early stage of development. This level of cost sharing is considered to be commensurate with the long-term nature of the development and the relative level of technical risk involved.

Question: To what extent could cost sharing be increased?

Answer: When the fuel cell technology matures and approaches commercial viability, DOE will ask industry to increase its share to as high as 50 percent in future phases of the systems program.

Question: If you were to down select to a single contractor in 1997, what cost savings could be achieved in that year and in subsequent years?

Answer: Down selecting to a single contractor in FY 1997 would achieve little or no cost savings in 1997 due to contractor close out costs associated with current automaker-supplier teams. Subsequent to these contract terminations in FY 1997, a single contract would be established with a fuel cell developer and a fuel processor developer. While this contractual effort could be made small to save costs, it would substantially increase the technical risk and development time. Technical risk increases because a small supplier team under a single contract forces premature technology choices in the areas of stack development and multifuel processing. The lack of the automakers involvement further decreases the probability of success of the technology since they need to set the system and customer requirements. Substantially decreased funding would save near-term costs but increase the development lifetime; thereby possibly costing more in the long term. It also has a negative economic impact in that the U.S. would lose its competitive edge to rapidly growing European and Japanese automotive fuel cell efforts.

Question: In addition to $20 million for fuel cell vehicle research, you have asked for $10,150,000 for fuel cell development (compared with $4.5 million in 1996). Why is this increase needed?

Answer: The fuel cell research and development supports the development of subsystems, components, and materials necessary to continuously reduce costs, improve performance, and increase the reliability of proton exchange membrane fuel cell systems. In FY 1997, work will continue to address the development of compressors and expanders, low-cost bipolar plates, membrane electrode assemblies, improved fuel cell catalysts, and direct methanol fuel cells. The additional $5.65 million in FY 1997 is necessary to support fuel processing R&D that will lead to a means of generating hydrogen on board the vehicle using conventional and alternative fuels. Work will be focused on an improved, integrated multifuel reformer, carbon monoxide gas clean-up systems (e.g., preferential oxidizers), shift reactor catalysts, and innovative concepts for fuel processors. It is prudent for DOE to include R&D support for fuel processing technologies using conventional and alternative fuels which will facilitate earlier introduction of fuel cell vehicles.

Question: How would down selection to a single contractor change that funding requirement?

Answer: Down selection to a single contractor would dramatically narrow the technical approach to advancing fuel cells for automotive applications. This would then place increased emphasis on having a viable pre-competitive fuel cell R&D program. A single contractor would probably not have the capability and expertise to provide the required technological advances in all critical fuel cell R&D areas to keep the U.S. competitive with the rapid progress being made in Europe and Japan. Furthermore, a single contractor may not have the objectivity to make technology decisions that are not in its organization's interest. A viable fuel cell R&D program is necessary in developing innovative alternative approaches, in the absence of duplication, to overcome critical barriers associated with advancing multifuel fuel processing technology and automotive fuel cells.

Materials Technology for Heavy Vehicles

Question: Propulsion system materials technology funding for heavy vehicles declines from $8 million in 1996 to $4.7 million in 1997. What accounts for this decrease and what impact will it have on ceramics research? (Budget p. 312)

Answer: Funding for heavy vehicle materials technology is declining because many of the expected accomplishments during FY 1997 are from advanced ceramic manufacturing contracts started in FY 1993, and funded in previous fiscal years. With reduced funding, the low expansion ceramics work will be completed; ceramic machining will be substantially reduced, except for small National Institute of Standards and Technology and Oak Ridge National Laboratory projects; and the diesel engine component effort will be small.

Question: How is the heavy vehicles systems materials technology work (budget p. 316) different from the propulsion system materials technology work?

Answer: Within the Propulsion System Materials activity, the automotive propulsion materials technology work (p. 311) is part of the PNGV initiative and consists of projects identified as supporting PNGV and the hybrid vehicle gas turbine engine. The project areas for automotive propulsion materials are high temperature silicon nitride turbine materials, gelcast forming process, gas turbine component manufacturing scale up, ceramic materials database, non-destructive evaluation, and life prediction for gas turbine engines. Ceramics being developed for lower temperature application in diesel engine components are part of the heavy vehicle materials technology program (p. 312). This program will address materials issues that involve combustion, high temperatures, and fuel interactions. Projects for heavy vehicle materials include advanced ceramic manufacturing technology for diesel engine components, low-cost silicon nitride materials, low-expansion ceramics, cost-effective ceramic machining, testing standards, and miscellaneous database and life prediction. The overall Propulsion System Materials effort will be carefully coordinated because it is recognized that much of the ceramics research and development results are generic to both gas turbine and diesel engines, and to both automotive and heavy vehicle applications.

Within the Lightweight Vehicle Materials activity, heavy vehicle materials technology (p. 316) will address primarily non-engine and non-drivetrain materials technologies related to heavy vehicles; for example, large structural components, support systems such as sensor controls, and rolling resistance and drag reduction technologies.

Question: Why is funding for heavy vehicle systems materials increasing? ($2,475,000 in 1996 and $3,129,000 in 1997)

Answer: These are three-year projects established by CRADAs and a competitive award, all of which are cost shared with industry. The statements of work for these projects involve first year (FY 1996) developmental efforts to firmly establish the technical concepts. The second year efforts (FY 1997) generally involve the scale up of the processes or analyses to actual prototype components and tests to define potential operating parameters. The scale up generally is more complex than the first year's activities and involves higher costs. The budget request reflects the best business estimates in the contractual and technical agreements that have been negotiated with the industrial and laboratory participants in the projects.

Lightweight Vehicles

Question: Please explain the increase of $8 million for lightweight vehicle technology (budget p. 315-316). ($10.8 million in 1996 and $18.9 million in 1997)

Answer: In FY 1995, the groundwork was laid for expansion of the program into chassis materials, such as light metal castings and reinforced polymer structures. In FY 1996, investigation began on lightweight materials for engine components. This expansion of scope resulted in an increased budget request. Because of the down selection schedule for materials for the Partnership for a New Generation of Vehicles, it is expected that the FY 1997 request will be the maximum for the program. Two key areas within the Lightweight Vehicle Materials program are fiber-reinforced polymer composites and lightweight metal components. The specific need for increases in these areas are detailed as follows:

Fiber-Reinforced Polymer Composites: Glass fiber-reinforced composites are under development for structural body components (pickup truck box) and chassis components (front cross member). While introducing tremendous manufacturing flexibility, these advanced materials will weigh up to 30 percent less than their steel counterparts. The development of low-cost carbon fiber-reinforced components for chassis and engine applications is anticipated in FY 1997. Carbon fiber-reinforced components have the potential to reduce weight by 50 percent, relative to steel.

Lightweight Metal Components: Low-cost aluminum sheet manufacture and processing are under development for automotive body panels. Processes for thin-walled castings of aluminum and magnesium are also in development. Application of these lightweight materials will reduce the vehicle weight up to 30 percent versus those using traditional steel and cast iron components. Plans for FY 1997 include the development of a lightweight, high-strength steel body structure, as well as innovative aluminum and magnesium alloys for chassis and engine applications.

Question: What contracts are involved; what is being done under each of those contracts; and at what level will each of them be funded in fiscal years 1996 and 1997?

Answer: The following table displays the projects and funding for lightweight vehicle materials and the respective performers.

Lightweight Vehicle Materials

Project	Performers	FY 1996 Conference	FY 1997 Request
Design for Cast Light Metals and Composites	U.S. Automotive Materials Partnership (USAMP), Oak Ridge National Laboratory (ORNL), Lawrence Livermore National Laboratory (LLNL), Sandia National Laboratories (SNL), Pacific Northwest National Laboratory (PNL), Ames Laboratory	$2,151	$3,590
Aluminum Forming and Alloy Development	USAMP, Los Alamos National Laboratory (LANL), American Society of Mechanical Engineers, North American Die Castings Association, Thixomat, Knight+Packer, North Iowa Die Casting, Reynolds Metals, Alcoa, Commonwealth Aluminum, Concurrent Technologies, Rockwell, Ohio State University, University of Michigan	2,880	4,460
Aluminum Processing Development	USAMP, ORNL, LLNL, Idaho National Engineering Laboratory (INEL), SNL	2,440	3,130
Aluminum-Intensive Vehicle Evaluation	Argonne National Laboratory (ANL)	95	0
Fiber-Reinforced Polymer Composites	USAMP, INEL, ORNL	2,045	5,141

Project	Performers	FY 1996 Conference	FY 1997 Request
Adhesive Bonding Process Development	USAMP, ORNL, University of Texas-Austin	1,060	1,790
Nanophase Materials for Supercapacitors	LLNL	90	0
Lightweight Steel Auto Body	Autokinetics	50	760
TOTAL		**$13,286**	**$22,000**

Light Duty and Heavy Duty Engines

Question: What is meant by "advanced automotive piston engines" and why is research in this area increasing from $3.9 million in 1996 to $8.3 million in 1997? (budget p. 324)

Answer: Advanced automotive piston engine R&D is aimed at higher risk and payoff technologies that can significantly (by 20-50 percent) improve light duty vehicle fuel efficiency while also meeting the future, most stringent emission reduction requirements. This R&D serves the overlapping needs of both spark ignited and compression ignited advanced piston engines. Due in part to foreign technology breakthroughs, these engines have recently become candidates for application in advanced conventional and lightweight vehicles (with hybrid electric or possibly mechanical drive) with up to three times the fuel efficiency of today's conventional vehicles. These goals are far beyond the U.S. automotive industry's immediate focus, i.e., achieving upcoming emission standards with a competitive and profitable product.

The program responds to the requirements of Section 2022 of the Energy Policy Act of 1992 and the Partnership for a New Generation of Vehicles (PNGV) initiative, as well as the recommendations of the National Research Council's Standing Committee charged with reviewing and advising the PNGV managers. Because of the late start, and having perhaps the best prospects for meeting PNGV goals in the near-to-mid term, R&D has been ramped up to better satisfy the PNGV research needs within the remaining narrow "window" in its schedule.

Question: Please provide a list, in priority order, of projects and funding in 1996 and 1997 for light duty and heavy duty engines.

Answer: Light Duty Engines: Because many smaller projects all contribute to the required improvement in the complete engine as a system, and they are closely inter-dependent and cannot be prioritized. The projects fall in the following categories with their respective approximate funding:

($000)

Project	FY 1996	FY 1997
Advanced and lean aftertreatment	$800	$2.800

Project	FY 1996	FY 1997
Advanced fuel injection	400	1,800
In-cylinder combustion and power boost	1,400	1,700
Alternative fuel capability	700	1,400
Manufacturing for efficiency and low emissions	600	800
Fuel combustion system optimization	700	900
Cylinder design for reduced emissions origins	667	900
Total	**$5,267**	**$10,100**

Heavy Duty Engines : The focus of the Heavy Duty Engine R&D program is the development of high efficiency, low emission diesel engine technologies. In order for high efficiency diesel engines to achieve ultra-low emission levels (e.g., the low emission vehicle and ultra-low emission vehicle levels demanded by California) for both oxides of nitrogen (NOx) and particulates (soot), it is necessary to combine and achieve a balance among the three technical approaches to emissions control: in-cylinder control of the combustion process; exhaust gas aftertreatment, e.g., catalytic reduction of NOx; and fuel formulation, e.g., additives to reduce emissions. No one single approach alone appears capable of achieving emission levels needed to meet the ever more stringent standards of the future. The projects fall into following categories, with their respective approximate funding:

($000)

Project	FY 1996	FY 1997
High efficiency in-cylinder component development (fuel injection, pistons, rings, exhaust energy recovery)	$2,300	$3,150
Combustion and emissions analysis	500	900
Oxides of nitrogen and particulate reduction for diesel engines	2,254	2,550
Fuel formulation for reducing emissions	400	500
Total	**$5,454**	**$7,100**

Residential Buildings

Question: Please provide for the record a list, in key activity format, of the projects in the residential, commercial and best practices programs, including funding for projects in fiscal years 1995, 1996 and 1997. Also identify the contractors.

Answer: The following table is provided with dollars are in thousands:

FY 1995 Residential Buildings

Key Activity	Contractor	Location	Funds	Cost Share (Industry: Gov't)
Building America			$4,435	1:3
	IBACoS	Pittsburgh, PA		
	CARB	Norwalk, CT		
	Building Science Corp.	Boston, MA		
	Hickory	Boston, MA		
	NREL	Golden, CO		
CCAP: Advanced Housing Technology Program			$400	3.75:1
	NREL	Golden, CO		
	NAHB Research Center	Upper Marlboro,MD		
CCAP: Energy Efficiency Industrialized Housing			$1,595	
	University of Oregon	Eugene, OR		
	FSEC	Cocoa, FL		
	LBNL	Berkeley, CA		
	Princeton Synergetics	Princeton, NJ		
	PNL	Portland, OR		
	SouthFace Energy	Atlanta, GA		
	SIPA	Washington, DC		
	Auburn University	Auburn, AL		
	Penn State University	University Park, PA		
	Habitat for Humanity	Americus, GA		
	Energetics	Silver Spring, MD		
	D&R International	Silver Spring, MD		
CCAP: Residential Energy Efficiency Program			$764	1:4
	ORNL	Oak Ridge, TN		
	NAHB Research Center	Upper Marlboro,MD		
		Total	$7,194	

1996 Residential Buildings

Key Activity	Contractor	Location	Funds	Cost Share (Industry: Gov't)
Building America			$3,961	2.5:1
	IBACoS	Pittsburgh, PA		
	CARB	Norwalk, CT		
	Building Science Corp.	Boston, MA		
	Hickory	Boston, MA		
	NREL	Golden, CO		
CCAP: Advanced Housing Technology Program			$400	
	NREL	Golden, CO		
	NAHB Research Center	Upper Marlboro,MD		
CCAP: Energy Efficiency Industrialized Housing			$1,500	
	University of Oregon	Eugene, OR		
	FSEC	Cocoa, FL		
	LBNL	Berkeley, CA		
	Princeton Synergetics	Princeton, NJ		
	PNL	Portland, OR		
	SIPA	Washington, DC		
	Penn State University	University Park, PA		
	Auburn University	Auburn, AL		
	D&R International	Silver Spring, MD		
	ORNL	Oak Ridge, TN		
CCAP: Residential Energy Efficiency Program			$813	1:4
	ORNL	Oak Ridge, TN		
	NAHB Research Center	Upper Marlboro,MD		
			Total $6,674	

FY 1995 Commercial Buildings

Key Activity	Contractor	Location	Funds	Cost Share (Industry: Gov't)
CCAP: Rebuild America			$5,887	34:1
	Metropolitan Edison	Kansas City, KS		
	Berkeley Energy	Berkeley, CA		
	Massachusetts	Boston, MA		
	Colorado SEO	Denver, CO		
	Tennessee SEO	Nashville, TN		

Wisconsin SEO	Madison, WI		
ORNL	Oak Ridge, TN		
PNL	Richland, WA		
LBNL	Berkeley, CA		
ANL	Argonne, IL		
Potomac	Washington, DC		
US COM	Washington, DC		
BMS Industries	Manassas, VA		
CCAP: Affordable Housing		$205	
ORNL	Oak Ridge, TN		
Energetics, Inc.	Silver Spring, MD		
Advanced Buildings - 2005		$1,524	1:1
PNL	Richland, WA		
Honeywell	Minneapolis, MN		
University of Colorado	Boulder, CO		
PECI	Portland, OR		
CIEE	Berkeley, CA		
NIST	Gaithersburg, MD		
CIEE	Berkeley, CA		
PECI	Portland, OR		
BMS Industries	Manassas, VA		
Berkeley Solar	Berkeley, CA		
LBNL	Berkeley, CA		
Existing Buildings Energy Research		$1,334	
LBNL	Berkeley, CA		
ORNL	Oak Ridge, TN		
BMS Industries	Manassas, VA		
Bosek & Associates	Tampa, FL		
Home Energy Magazine	Berkeley, CA		
SouthFace Energy	Atlanta, GA		
Texas A&M University	College Station, TX		
University of Florida	Gainesville, FL		
CIEE	Berkeley, CA		
ANL	Argonne, IL		
LBNL/Honeywell	Berkeley, CA		
	Total	$8,950	

FY 1996 Commercial Buildings

Key Activity	Contractor	Location	Funds	Cost Share (Industry: Gov't)
CCAP: Rebuild America			$8,096	34:1
	City of Toledo	Toledo. OH		
	Center for Energy	Minneapolis, MN		
	Berkeley Energy	Berkeley, CA		
	ORNL	Oak Ridge, TN		
	PNL	Richland, WA		
	ANL	Argonne, IL		
	LBNL	Berkeley, CA		
	Potomac	Washington, DC		
	USCOM	Washington, DC		
	BMS Industries	Manassas, VA		
	Climate Institute	Washington, DC		
	Energetics	Silver Spring, MD		
CCAP: Affordable Housing			$0	
Advanced Buildings - 2005			$1,570	1:1
	PNL	Richland, WA		
	Honeywell	Minneapolis, MN		
	University of Colorado	Boulder, CO		
	PECI	Portland, OR		
	CIEE	Berkeley, CA		
	NIST	Gaithersburg, MD		
	CIEE	Berkeley, CA		
	PNL	Richland, WA		
	Kammerud	Oakland, CA		
Existing Buildings Energy Research			$1,053	
	ANL	Argonne, IL		
	LBNL	Berkeley, CA		
	ORNL	Oak Ridge, TN		
	BMS Industries	Manassas, VA		
	Bosek & Associates	Tampa, FL		
	Home Energy Magazine	Berkeley, CA		
	Texas A&M University	College Station, TX		
	CIEE	Berkeley, CA		
		Total	$10,719	

FY 1995 Best Practices

Key Activity	Contractor	Location	Funds	Cost Share (Industry: Gov't)
Energy Design Tools			$1,701	0.8:1
	LBNL	Berkeley, CA		
	University of California	Fullerton, CA		
	LBNL	Berkeley, CA		
	PNL	Richland, WA		
	LBNL	Berkeley, CA		
	IBPSA	Madison, WI		
Passive Solar			$912	10:1
	NREL	Golden, CO		
	NREL	Golden, CO		
	SAIC	Reston, VA		
	NREL	Golden, CO		
	PSIC	Washington, DC		
	LBNL	Berkeley, CA		
Indoor Air Quality			$1,602	
	LBNL	Berkeley, CA		
	NREL	Golden, CO		
	NIST	Gaithersburg, MD		
	AIVC	Warwick, UK		
Information Outreach			$612	
	LBNL	Berkeley, CA		
	NREL	Golden, CO		
	ORNL	Oak Ridge, TN		
	PNL	Richland, WA		
		Total	$4,827	

FY 1996 Best Practices

Key Activity	Contractor	Location	Funds	Cost Share (Industry: Gov't)
Energy Design Tools			$1,733	1.22:1
	LBNL	Berkeley, CA		
	University of California	Fullerton, CA		

	University of Illinois	Champaign, IL		
	LBNL	Berkeley, CA		
	PNL	Richland, WA		
	LBNL	Berkeley, CA		
	ORNL	Oak Ridge, TN		
Passive Solar			$875	10:1
	NREL	Golden, CO		
	NREL	Golden, CO		
	LBNL	Berkeley, CA		
	Berkeley Solar	Berkeley, CA		
	PSIC	Washington, DC		
	SAIC	Reston, VA		
	NREL	Golden, CO		
Indoor Air Quality			$1,230	
	LBNL	Berkeley, CA		
	NREL	Golden, CO		
	NIST	Gaithersburg, MD		
	AIVC	Warwick, UK		
Information Outreach			$606	
	LBNL	Berkeley, CA		
	NREL	Golden, CO		
	ORNL	Oak Ridge, TN		
	PNL	Richland, WA		
		Total	$4,444	

For FY 1997 requested funds are listed. In general, funding of existing contractors would be anticipated. In most areas with funding increases requested, e.g., Rebuild America, competitive solicitations will be used to select new partners, along with increased technical support resources. In some instances, increased support for existing contractors or 'sole source' selection in special cases, may be used.

FY 1997 Residential Buildings

Key Activity		Funds
Building America		$6,662
CCAP: Advanced Housing Technology Program		$400
CCAP: Energy Efficiency Industrialized Housing		$1,500
CCAP: Residential Energy Efficiency Program		$3,100
	Total	$11,662

FY 1997 Commercial Buildings

Key Activity		Funds
CCAP: Rebuild America		$10,100
CCAP: Affordable Housing		$3,100
Advanced Buildings - 2005		$1,800
Existing Buildings Energy Research		$1,350
	Total	$3,150

FY 1997Best Practices

Key Activity		Funds
Energy Design Tools		$3,000
Passive Solar		$1,100
Indoor Air Quality		$1,350
Information Outreach		$2,289
CCAP: Advanced Architectural Design		$1,000
	Total	$8,739

Question: What individual projects make up the $5 million increase for residential buildings?

Answer: Building America will receive an increase of $2.7 million and the Climate Change Action Plan (CCAP)--Residential Energy Efficiency Program will get $2.3 million.
We intend to expand the development activity of the four Building America consortia by beginning community scale development, with the goal of 15,000 houses within five years. FY 1997 will also feature taking the lessons learned from the test houses and Exemplary Buildings, and incorporating these results and transferring them into the developments. An aside of this will be using successes coming out of the program in our other residential programs. FY 1997 will mark the year when consortia experience will feed into our R&D programs and ask us for the technical assistance in their development of the "next generation" of residential building systems.

The increase in our Residential Energy Efficiency Program represents the need to provide builder training on a regional basis (with the intent of having it replicated on a national scale) providing the insights and incentives to build houses with increased energy efficiency features, and at the same time not significantly increasing the builder's construction costs. As part of a pilot training curriculum, emphasis will be placed on thermal distribution systems and their detrimental effects to heating and air-conditioning energy consumption when not designed or constructed properly, and on methods to reduce the need for larger thermal systems. Also included in this increase would be an enhancement to our Energy Value Housing Award and Showcasing work with the National Association of Home Builders (NAHB). This successful program has already awarded builders and begun the technology transfer of their construction techniques to other members of NAHB and other builders across the country.

Question: What is the status of the "Building America" program and what are the goals of this program?

Answer: Four consortia are currently working with the Department and are in various stages of progress. IBACoS, Inc. Has completed two test houses in Pittsburgh, PA, and one in Austin, TX. Their demonstration house in Pittsburgh has shown energy reductions of 42 percent compared to the baseline home. They intend to expand their construction and begin development-size construction in FY 1997. Building Science Consortium has built three houses outside of Chicago demonstrating an approximately 50 percent savings in energy as compared to local code at a reduced construction cost. These savings are to be replicated throughout the entire 300 house development. The Consortium for Advanced Residential Buildings (CARB) is building their first units in Frederick, MD, and expects to expand into development scale construction by FY 1997. Our fourth partner, the Hickory Consortium, is beginning their prototyping in the current fiscal year.

Building America is an industry partnership program bringing together all segments of the housing industry (designers, builders, developers, financial institutions, materials suppliers, and equipment manufacturers), applying a systems engineering approach to accelerate the development and adoption of building process and systems innovations for energy efficient, environmentally sensitive, affordable and adaptable residences. The goals of the program are to reduce energy use by 40-60 percent, construction waste by 50 percent, and construction time. A result of this will have consumers saving $300 million in energy costs by 2005, while reducing carbon emissions from residential energy consumption almost 1 million metric tons of carbon equivalent annually by 2005. We anticipate over the next four years over four hundred test and prototype homes will be evaluated by our industry partners with innovations being built into future production homes.

The Exemplary Buildings Program provides supporting research to the Building America program. In these buildings, the goal is provide, on average, 75 percent of the building's heating and cooling requirements using passive solar strategies at no increase in construction cost.. The industry partners design teams work with the Department's researchers to identify the advanced strategies and how to integrate them into the building, the industry partners construct the building and we monitor its performance to establish that the advanced concepts function as anticipated. Industry is then responsible for sharing the results among its peers and Building America Consortia for incorporating the concepts into their buildings. To date five homes are in various stages of design, construction and monitoring, one which is the model for a moderate-sized affordable housing subdivision. Over the next five years, the need is to adapt promising concepts to additional climate zones, continue to test additional identified advanced concepts in another 10 to 15 homes, and continue to develop passive solar strategies that are viable options in all subdivision or planned unit developments, even when lot orientations are less than ideal.

Commercial Buildings

Question: What portion of the $5.6 million increase in the commercial buildings program is for the "Rebuild America" program?

Answer: The portion of the $5.6 million increase allocated to Rebuild America is $2.0 million.

Question: Briefly describe Rebuild America and how it differs from the residential Building America program.

Answer: Rebuild America helps community partnerships design and carry out commercial and multifamily building energy efficiency projects. Organizations partnering with DOE include local and state government agencies, economic development organizations, energy service companies, financial institutions, utilities, private businesses, and nonprofit organizations. Partners join Rebuild America by making a commitment to develop a community-wide action plan.

The action plan is tailored to meet local priorities and includes: goals, partners, targeted buildings, energy efficiency measures to be used, financing sources, marketing, and methods used to monitor and track progress. DOE helps partners develop their plans. When the plan is completed, partnerships are eligible for additional technical assistance services, and may compete in the annual Rebuild America solicitation for seed money. Only 10 percent - 15 percent of the Rebuild partners receive financial awards. Financial assistance can be used for anything but the purchase and installation of energy measures.

The difference between Rebuild America and Building America is in the targeted market segment. Rebuild America is designed to reduce energy use by instilling energy efficient retrofits in *commercial and multifamily buildings*. Building America uses industry led consortia (with members consisting of designers, builders, developers, financial institutions, materials suppliers, and equipment manufacturers) to construct new, high performance *single family homes,* using a systems engineering approach to accelerate the development and adoption of building process and systems innovations for energy efficient, environmentally sensitive, affordable and adaptable residences.

Question: Last year the Committee suggested that any HUD housing retrofit program should be paid for by the Department of Housing and Urban Development. Again, the budget proposes DOE financing. Why isn't HUD paying for this if it's such a good idea?

Answer: The "Affordable Housing " program has been designed as a joint effort between DOE and HUD that will be financed by both direct and indirect contributions from each agency, and which intends to leverage significant additional investment for capital retrofits from such private sources as energy service companies (performance contractors), utilities, mortgage lenders, and housing developers or redevelopers. It is purposely intended to support the use of existing HUD programs and capital funds with DOE's technical assistance to build and retrofit affordable housing. Additionally, the focus of the program extends beyond housing assisted by HUD. It includes actions that will improve the energy efficiency and affordability of both HUD's public and assisted housing, community based non-profit housing, and privately-owned multifamily housing for families throughout the nation.

To implement the partnership, specific responsibilities have been defined for both DOE and HUD. These responsibilities are summarized briefly below.

- HUD will (1) continue to offer incentives (through HUD's Performance Funding System) to leverage private capital through the use of performance based energy investments and (2) encourage public housing authorities to partner with DOE to evaluate capital improvement needs with the objective of maximizing all potential energy saving opportunities.

- The DOE funds requested will support technical assistance to both HUD public housing authorities and other community housing providers who have direct responsibilities for the construction, rehabilitation, and management of low income housing.

- Specific emphasis in DOE's support will be placed on developing approaches to both retrofit and new construction programs that focus on performance improvements for "whole-building or total-building systems ". These approaches will aid significantly in developing new building, renovation and maintenance specifications that will provide long-term institutional energy savings that combine performance improvements by integrating and applying results from DOE's ongoing research on individual component technologies; e.g., better insulation, improved windows, high efficiency appliances and HVAC systems.

- The partnership between HUD and DOE will assure both the effective use of existing capital funds and the application of best existing technologies for low income housing managers and contractors.

The program will work by establishing partnership agreements between DOE and local housing providers that outline their specific savings objectives, actions and technical assistance needs. Initial commitments have been made by public housing authorities in Atlanta and Chicago. The New York Housing Authority is also interested in the program, and is already participating in a volume purchase agreement for energy efficient refrigerators that is jointly supported by HUD and DOE. Additional interests for participation have been shown by authorities and housing providers in Baltimore, Kansas City, Sacramento, Knoxville, Memphis and other communities.

Recognizing the importance of energy efficiency on housing affordability, and as a means to provide additional support for the program, HUD is directly financing a national clearinghouse for energy efficiency information through the National Center for Appropriate Technology, and has provided direct financial support to DOE's Oak Ridge National Laboratory to provide energy performance training to public housing authorities. Additionally, the program will be involved strongly with HUD's "National Partnership for Homeownership", a collaboration of fifty-six private, public and non-profit organizations, which is designed as a public/private initiative to "increase the use of innovative new technologies and produce less costly and more energy and resource efficient new homes."

Question: What amount of funding is assumed in your budget for the HUD housing initiative?

Answer: The DOE funding request for affordable housing is $3.1 million for fiscal year 1997. It is anticipated that 60 percent of the funds will be used to support housing agencies, the remainder will be used to enhance local community builders to improve their building retrofit practices.

Question: How much is HUD contributing?

Answer: HUD is contributing approximately $1 million to support a clearinghouse for energy efficiency through the National Center for Appropriate Technology, and has provided $156,000 to DOE's Oak Ridge National Laboratory for energy performance contracting training to housing authority staff. HUD's public housing (not including assisted housing) modernization funds of about $2.5 billion annually may be used to fund capital improvements, however there are no specific funds designated for energy related capital improvements . Local public housing authorities decide how to utilize these funds for all their capital needs. DOE assists local housing authorities to optimize their capital improvements and their life cycle costs by incorporating cost effective energy related improvements.

Best Practices

Question: An increase of $4,295,000 is requested for Best Practices. What is this program?

Answer: In an effort to reduce the fragmentation in our budget submittal, the Building Systems activities are now described in just three planning units: Residential Buildings, Commercial Buildings, and Best Practices. The first two units include the non-technology specific, i.e., "Building Systems", activities of R, D & D and implementation that relate directly to residential and commercial buildings respectively. The Best Practices planning unit includes the cross-cutting, non-regulatory activities that focus on improving the energy and environmental designs of the nation's buildings. Best Practices program elements include: **Energy Tools** and **Passive Solar**, where industry and government work as a team to ensure that design tools have energy efficiency and renewable energy fully considered in each appropriate stage of the building design process, and to test advanced concepts integrating renewable and energy efficiency; **Indoor Air Quality,** where the relationship of energy efficiency and improved occupant environments is determined and guidance for managing indoor environments developed; and an **Technology Transfer/Outreach Program**, where an effective mix of technology push and market pull strategies is developed for each research activity in order to facilitate the adoption and use of Buildings-supported technologies.

A summary of the $4,295,000 increase is as follows:

Project	Increase	What (dollars in thousands)
Information Outreach	$1,683	Development of a coordinated education and training program
Design Tools	$1,267	Accelerated completion and upgrading, testing, documentation, and delivery of two design tools (software programs): DOE-2.2/PowerDOE and Building Design Advisor.
Advance Architectural Design	$1,000	The initiation of a proactive program to educate the architectural community on the use of DOE developed design tools.
Passive Solar	$225	To increase to breath of passive solar design strategies to include: advanced daylighting, hybrid cooling, and material choices.
IAQ	$120	Slight increase to allow continuation of productivity studies

Question: What other agencies participate in the best practices program and what is their funding contribution?

Answer: Currently, one new U.S. Park Service visitor center is serving as prototypical passive solar advanced building with technical assistance provide by DOE. The U.S. Park Service funding contribution would be the cost of its own design team and the building itself, unless a third party process is used to finance the building, estimated at $400,000. If not, the estimated cost to the Park Service may be $500,000-$750,000.

As a general matter, all federal agencies are required to coordinate their Indoor Air Quality activities. Through the legislatively created interagency Committee on Indoor Quality, DOE, EPA, NIOSH and other agencies are exchanging information, sharing results, avoiding duplication, and jointing forces where appropriate. The FY 1997 request for DOE includes a project with NIOSH on productivity studies. The NIOSH share would be approximately $200,000. The Department of Defense supports the development of next generation tools through it's U.S. Army Construction Engineering Research Laboratories. Estimated FY 1997 contribution is $250,000.

Question: What industry participants are there and what are their contributions?

Answer: Shown below are the industry participants in the Best Practices planning activity (dollars in thousands.)

	FY 1995	FY 1996	FY 1997
Softdesk, Inc.	$350	$500	$500
Trane Company		200	200
Electric Gas and Utilities	250	300	300
Gas Research Institute			300
Electric Power Research Institute	800	750	750
Private Sector Vendors of DOE-2	300		300
Ventilation Research, Industry CRADAs (United Technologies Research Center, Engelhart Industries)	100	50	100
Outreach, O&M Training, Private Partners TBD. 50 percent cost-share will be required			1,100
The Quantum Group Inc. CO passive sampler development	200	0	0
City of Valmeyer	775		
State of Maryland/Charles County Schools			13,000
PSIC Members-revenue in-kind	150	270	270

Question: What is PowerDOE and how much of the increase for Best Practices is for this program?

Answer: PowerDOE is a user-friendly, Windows™ interface for the Department's building energy simulation program, DOE-2. PowerDOE development is being funded by a consortium of electric utilities led by the Electric Power Research Institute. The Department is not funding the development of the PowerDOE interface but is funding a significant upgrade to the DOE-2 building energy simulation program. This new version of DOE-2 will be available to all users including PowerDOE and the existing 9 private sector vendors of DOE-2. Of the increase requested for Best Practices, $400 thousand is related to upgrading and enhancements of the DOE-2 building energy simulation program.

Building Equipment and Materials

Question: Why is the funding for the refrigerants research increasing in fiscal year 1997?

Answer: The increase restores the funding for the refrigeration program to a core level that will support industry's development of heat pump and air conditioner designs that do not depend on R-22, a hydrochlorofluorocarbon (HCFC) widely used in residential and light commercial heat pumps and air conditioning systems. The requested increase will continue cost-shared, pre-competitive research with major manufacturers on materials, compatibility, safety, and other design aspects necessary to enable industry to adopt new refrigerants in residential and commercial air conditioning equipment designs. New designs must be developed in response to federally-mandated phaseouts of existing refrigerants, such as hydrochlorofluorocarbons, that are being phased out of production under the terms of an international environmental treaty. The increase funds research that will preclude wasteful, duplicative research on pre-competitive design issues that manufacturers otherwise would have to pursue separately, making the U.S. air conditioning industry more competitive in the growing worldwide market for air conditioning equipment that does not use chlorofluorocarbon (CFC) or hydrochlorofluorocarbon refrigerants.

Cost sharing is 15 percent of total project costs. Cost share is contributed from consortia of manufacturers, industry partners under CRADAs and electric utility R&D organizations. The industry is, of course, investing large sums in the actual development of CFC and HCFC-free technologies and new products.

Question: What exactly would you do with the $1,000,000 requested for fuel cells for buildings program?

Answer: Significant technological advances in the Proton Exchange Membrane (PEM) fuel cell show promise of being more adaptable to light commercial applications in smaller capacity and physical sizes than the Phosphoric Acid Fuel Cell (PAFC). The Fuel Cell for Buildings Program will work with the automotive fuel cell program and adapt any technology that is applicable to the buildings program. The buildings program will initially focus on PEM fuel cells at power levels from 25kW to 50kW which are more suited for light commercial buildings, then move to reduced capacities in the second generation fuel cell. PEM fuel cell have the potential to meet the building needs at a competitive cost. The buildings fuel cell program does not have all the packaging and heat transfer constraints the automotive program is faced with. Conversations with stakeholders and developers indicate that PEM can be one of the first technologies on the market and will significantly help other fuel cell technologies overcome the many hurdles that must be met in making fuel cells a marketable technology. The target cost of $1,500/kW gives the PEM fuel cell a sizable market in the buildings community. The buildings fuel cell program will accelerate the introduction of the PEM fuel cells into the market place and move other fuel cells technologies along at a faster pace.

The cost sharing for the fuel cell program is expected to be 50 percent of total project costs for large business firms participating in the program.

Question: The committee did not agree to fund fuel cells for buildings program last year. What new information can you provide to make your case this year?

Answer: Significant technological advances in the Proton Exchange Membrane (PEM) fuel cell show promise of being more adaptable to light commercial applications in smaller capacity and physical sizes than the Phosphoric Acid Fuel Cell (PAFC). The Fuel Cell for Buildings Program will work with the automotive fuel cell program and adapt any technology that is applicable to the buildings program. The buildings program will initally focus on PEM fuel cells at power levels from 25kW to 50kW which are more suited for light commercial buildings, then move to reduced capacities in the second generation fuel cell. PEM fuel cell have the potential to meet the building needs at a competitive cost. The buildings fuel cell program does not have all the packaging and heat transfer constraints the automotive program is faced with. Conversations with stakeholders and developers indicate that PEM can be one of the first technologies on the market and will significantly help other fuel cell technologies overcome the many hurdles that must be met in making fuel cells a marketable technology. The target cost of $1,500/kW gives the PEM fuel cell a sizable market in the buildings community. The buildings fuel cell program will accelerate the introduction of the PEM fuel cells into the market place and move other fuel cells technologies along at a faster pace.

Question: Much of the increases in the lighting and appliance program is for technology introduction and technology marketing. Why is the Department of Energy involved in commercializing lighting and appliance technologies?

Answer: DOE has traditionally invested in technology through advanced technology R&D. New products that result from DOE investments are often developed by small businesses or new entrants in existing markets. Electronic fluorescent light ballasts and heat pump water heaters are examples. These firms, while among the most innovative, often do not have the resources to introduce new products into national markets on their own.

As an example, the flame retention head oil burner was a commercially viable energy saving technology that languished without measurable market penetration during the 1970's, despite the doubling of fuel oil prices during that period. DOE then began a program to address safety and reliability; to validate performance in the laboratory and in the field; to promote the technology with consumers, heater manufacturers and dealers; and to train technicians. The result was more rapid adoption of the technology (80 percent market penetration in 3 years) and cumulative energy savings of approximately 0.8 Quads due to the accelerated pace of commercialization.

Widespread success with market-pull technology acquisition programs (e.g. Nutek in Europe and Super-Efficient Refrigerator Program in the US) indicates that a respected organization with seed funding and technical support can bring together disparate interests (manufacturers, utilities, building owners, financial institutions) to stimulate demand for products not yet available in the marketplace. The effect is to overcome the "chicken and egg" problem associated with the high risk for manufacturers to invest in new technologies beyond the R&D stage without an established market, on the one hand, combined with consumers' insufficient access to new products in large quantities and at acceptable cost to generate the sales volumes needed to convince the manufacturers to proceed, on the other. Experience has shown that sufficient market demand can be established in the early technology introduction phase to eventually transform the market with limited government support.

In response to Section 127 of the Energy Policy Act of 1992, the Department evaluated the potential for the development and commercialization of appliances (including HVAC), which are substantially more efficient than required by Federal or State law. The Department held eight workshops with private and public sector stakeholders. Workshop participants recommended several actions to achieve more rapid introduction of highly efficient technologies into the marketplace: 1) technology innovation and information (test and evaluate new technologies), and 2) "market pull" (market aggregation to pool purchasing power, utility and other incentives, and infrastructure and information enhancements). The private sector stated that these actions were a unique contribution that the Department could make and that would not be pursued by others.

More specifically, people who decide which technologies to purchase for their firms told the Department about their concerns. The Department heard that an impartial source of information on energy efficient technologies was needed, and that the Department should take on that role. Most firms, the motels and hotels industry is a good example, are not technically oriented. To become so would divert attention from their core business. They have told the Department that it could play a crucial role in enabling them to make good economic investment decisions. The right technologies will lower costs, make them more competitive, and enable them to provide the best possible services to their customers.

Cost sharing estimates for 1997 are $1.5 million in direct cash cost sharing and $21 million in "in-kind" contributions to project costs. These costs do not include the cost of equipment purchases or incentive payments which may result from the projects. Cost sharing is contributed by utility consortia, utility R&D organizations, retailers, manufacturers, building owners and others.

Question: For the record, please provide a list in priority order of the increases requested for the lighting and appliance research program.

Answer: The increases for lighting and appliance programs are sought for the purpose of maintaining a portfolio of high priority, cost shared, technology introduction projects begun in FY 1995.

Priorities of the individual technology introduction projects are determined by a number of factors, including the needs of the Department's partners, the potential for cost sharing, the readiness of new technologies, and the market environment. These factors are continuously evolving as the Department develops partnerships and consortia with a wide spectrum of participants to carry out the technology introduction activity. For this reason, it is impossible to determine far in advance the fine details and relative priority of individual projects.

Windows

Question: Why is DOE still involved in windows research; aren't major advances in windows technology already on the market?

Answer: Energy use in the US attributable to windows is about 3.2 quads per year. DOE's goal is to turn this net energy loss from windows into a net energy gain -- thus saving 3.2 quads. This is possible since new window technologies can not only significantly reduce energy use, but collect useful energy in the form of solar heat gain and natural light. Achieving the significant energy savings potential for windows requires research not only to develop new technologies and processes, but also to provide the tools and information needed by manufacturers to develop and deploy efficient window technologies, and by users to specify and select such technologies. Otherwise new efficient technologies could be limited in market acceptance.

Question: What key areas are you focusing on and why is it appropriate for the Federal government to be involved?

Answer: The Windows & Glazing Research program, though it has maintained a balanced, comprehensive research program, is focusing resources in the following areas: (1) Completion of the research and technical support for the voluntary basic window energy rating program -- industry's number one research priority; (2) Implementation of the SuperWindow Collaborative; and (3) Continuation of the Electrochromics Industry/Government consortium.

1. Need for Federal Research Support for the Voluntary Window Energy Rating System -- Research support is directed towards establishing the rating procedures which are technically credible, accurate and unbiased. Technical credibility is key to acceptance among the many jurisdictions and competing commercial interests of the rating system. It has also proven to be the most effective approach for international acceptance of the standards which, in turn, provides a significant benefit to US companies trying to export efficient window and glazing products. According to industry, DOE's technical team, lead by Lawrence Berkeley National Laboratory, has provided trusted neutral third party scientific input of high technical stature, enabling many competing companies to accept the rating program. Unique and highly accurate test facilities and laboratories at LBNL, at the Oak Ridge National Laboratory (ORNL) and the National Renewable Energy Laboratory (NREL) are also providing the tools needed to validate the rating system that is assisting industry in improving products based on the new performance standards.

2. Need for Federal Involvement in the SuperWindow Collaborative -- The benefits to the nation are very large in terms of energy savings for a modest investment. This large energy savings potential can be captured if today's window market can be shifted from its current average of less than R-2 toward the "best available" technology, currently over R-5. The market moves slowly unless prodded by outside forces. Much of the shift from single to double to low-E glazing was accelerated by the actions of a few high end manufacturers targeting cold climates (R-2 -> R-3) and by the impact of tighter standards. The current standards can be met by products already on the market so there is little additional incentive to offer better products. The large manufacturers need to be encouraged to offer higher performance options (R-4, R-5) and smaller manufacturers need similar encouragement to upgrade to better off-the-shelf technology.

3. Need Federal support for Electrochromics -- Currently, the risks and level of investment required are high enough to prevent the early development of commercially available electrochromic windows without Federal support. Also, because of foreign government investments in their industry's electrochromic technology, it is difficult for US industry to compete unless there is a US Federal investment. Even after more than a decade of fundamental research on electrochromic windows these windows are still viewed as a very risky undertaking by the window industry. This risk is both technical and market based. The technical risk is that there are still no materials systems whose optical properties have demonstrated long term performance meeting desired levels, although some promising candidates systems are now being tested. DOE's willingness to cost share and contribute basic materials science support from the Lawrence Berkeley National Laboratory and the National Renewable Energy Laboratory helps reduce this risk. The market risk comes from the unknown reception of a product whose initial cost is likely to be higher than any other mass produced advanced glazing and whose performance is yet not well defined. DOE's role in promoting market acceptance with unbiased energy savings studies, design guidance, field tests, and demonstration projects will help overcome these risks.

Question: What are superwindows and what does the budget assume with respect to funding research in this area in fiscal years 1996 and 1997?

Answer: The budget assumed for superwindow technology is $194,000 in FY 1996 and in FY 1997, $250,000 is requested. The focus is on the adaption of ion-beam enhanced deposition technology, primarily being developed under the Electrochromics project, to high performance glazing. "Superwindow" technology is broadly defined as high performance windows. They have historically focused on very high thermal resistance windows with R-values over R-7 or 8. As used today, they include advanced solar control windows including highly spectrally selective windows that block most solar heat gain but are clear and transmit most daylight. The best performing "superwindows" are comprised of a large number of material, component and system innovations. [One aspect of the SuperWindow Collaborative is to provide technical support to industry in adapting these innovations to their products which will result in a shift in the average thermal performance of windows sold (e.g., from less than R-2 to over R-5). At the higher end of the spectrum from which the initiative was named, the Collaborative would result in the development and significant deployment of new superwindow technologies.]

Question: Please provide a list in priority order of the projects which comprise the increase for windows research.

Answer: The Department has established significant goals for its windows program. The funding request is needed to attempt to meet those objectives and to maintain the productive collaborative partnership that has been established with the industry.

Advanced Gas Turbines

Question: What is the advanced gas turbine program and what is the total funding for the program in the budget request?

Answer: The Advanced Turbine Systems (ATS) Program will develop the next generation of land-based turbine systems for both utility and industrial applications, including cogeneration. The program is an eight year, $700 million effort jointly funded by DOE and industry. Management responsibility is shared by DOE's Offices of Fossil Energy and Energy Efficiency and Renewable Energy.

The goal of the program is to design, develop and demonstrate advanced turbine systems that will be more efficient, environmentally superior, and will produce electricity costing 10 per cent less at the busbar. Advancements in engine system and component design will be integrated with the use of advanced materials technology. The efficiency goal for the utility class gas turbine is 60%; for the industrial turbine, an improvement of 15% is sought over current models. Emissions of nitrous oxides (NO_x), carbon monoxide (CO) and unburned hydrocarbons are to be reduced to less than 10 ppm.

FY 1997 Budget request

EE - $24.7 million

FE - $31.6 million

Total -$56.3 million

Question: Why is the program funded in both Energy Conservation and in Fossil Energy?

Answer: The ATS Program will develop and test the next generation of gas turbine engines for use in both industrial (<20 MW) and utility power generation (>100 MW). The program is managed by both organizations since the program crossed the functional lines of both organizations. Joint management leads to significant cost savings since there is no redundancy in efforts. Much of the base technology research applies to all sizes of gas turbines, however, the technology requirements for these two size ranges are different in some areas. EE and FE bring their strengths in different technology areas together in the ATS program. Fossil Energy (FE) has a strong background in the larger gas turbine size range and in the combustion and coal technology areas. EE has expertise in smaller power systems through the Cogeneration program and has a successful history in the materials and the biomass area.

FE is responsible for:

-Research, development and demonstration of the utility-sized ATS engine.

-Technology base development through a university consortium at Clemson University

-Combustion development related to the ATS program

-Integration with coal-derived fuels.

EE is responsible for:

-Research, development and demonstration of the industrial-sized ATS engine.

-Materials technology development through the Oak Ridge National Lab (EE manages the entire materials effort and funds technology base development. FE funds materials work particular to large gas turbines).

-Ceramic components for existing gas turbine engines

-Integration with biomass-derived fuels.

Question: Why does funding in your budget for advanced gas turbines increase while the turbine request in fossil energy is decreasing?

Answer: The EE budget request is 20% below the program plan but follows the increasing funding profile trends as laid out in the original program plan. Under EE's FY97 budget request essential but non-critical path development will be pushed back to maintain the program's major milestones while continuing to fund two contractors. FE's budget request is $22.7 million short of what is required in the cooperative agreements with the two contractors.

Question: How many contractors are involved in the program and who are they?

Answer:

Solar Turbines
Allison Engines
General Electric Company
Westinghouse
Asea Brown Boveri
United Technologies Corp
South Carolina Energy R&D Center
Oak Ridge National Lab
Morgantown Energy Technology Center

Question: To what extent are they the same contractors as in the fossil energy funded turbine program? Please explain.

Answer:

	EE	FE
Solar Turbines	EE is funding the development and demonstration (FY95-01)	FE funded concept development (prior FY95)

Allison Engines	EE is funding the development and demonstration (FY95-01)	FE funded concept development (prior FY95)
General Electric Company		FE only
Westinghouse	EE is funding a materials development effort with Westinghouse	FE is funding the development and demonstration
Asea Brown Boveri		FE only
United Technologies Corp	EE funds materials development effort	EE funds combustion development effort
South Carolina Energy R&D Center		FE only
Oak Ridge National Lab	EE funds materials base technology effort	FE funds materials development particular to large gas turbines
Morgantown Energy Technology Center		FE only

Question: What would be the impact of down selecting to a single contractor in the energy conservation funded turbine program in 1997?

Answer: The two contractors in the EE program have taken two very different technology paths to get to the Advanced Turbine Systems program goals. Down selecting now would increase the technology risk since we would be pursuing only one path. The benefits would also be reduced since we would not have two companies commercializing the ATS engines. In addition, it would give an American manufacturer a superior competitive edge over their American competitor. It also violates the commitment DOE has made to the program's participants through the original program plan. Both contractors spent significant cost share so far in the program and have made major corporate commitments to the program. Down selecting now would have wasted the funds already expended by these contractors and by the government.

The cost savings due to down selecting early are not as great as would be expected. A goal of the ATS program is for these engines to be adaptable to biomass-derived fuels. The program receives funding from the Energy and Water Development bill, $5 million for FY1997, to help fund one of the contractors to help meet this goal. As funding is reduced, DOE would ensure the highest priorities of the ATS program (energy savings, emissions reductions, cost savings) are met and drop other priorities such as biomass applications. Early down selection will save $5 million in the Energy and Water Development appropriations bill.

Question: What funds would be saved in 1997 and in each of the out years if down selection occurred in fiscal year 1997?

Answer:

	FY97 ($MM)	FY98 ($MM)	FY99 ($MM)	FY00 ($MM)	FY01 ($MM)
Projected Interior Budget Request	$24.7	$30.7	$27.4	$23.2	$9.7
Projected Interior Budget Request with FY97 down selection to one contractor	24.7	30.7	27.4	23.2	9.7
Energy & Water Appropriations Bill Savings with FY97 down selection to one contractor	5.0	5.0	4.5	3.0	1.8
Interior & Related Agencies Appropriations Bill Savings with FY97 down selection to one contractor	0.0	0.0	0.0	0.0	0.0

Question: For the record, please provide two summaries of the total funding for the turbine program which show funding by budget activity and subactivity for each of the projects which comprise the advanced gas turbine program in each of the previous fiscal years, in 1996, in 1997 and in each of the out years. The first summary should assume continuing the full scale program. The second summary should show funding if conservation and fossil were each to down select to a single contractor in fiscal year 1997.

Answer:

Full Scale Program

	thru FY95 ($MM)	FY96 ($MM)	FY97 ($MM)	FY98 ($MM)	FY99 ($MM)	FY00 ($MM)	FY01 ($MM)
Ceramic Retrofit Gas Turbine	$16.3	$6.5	$4.5	$2.0	$0.0	$0.0	$0.0
ATS Development and Demonstration Contracts	8.8	11.6	16.2	24.7	23.4	19.7	6.7
Materials Base Technology Research	$6.0	$3.5	$4.0	$4.0	$4.0	$3.5	$3.0
Totals	$31.1	$21.6	$24.7	$30.7	$27.4	$23.2	$9.7

Single Contractor Program

	thru FY95 ($MM)	FY96 ($MM)	FY97 ($MM)	FY98 ($MM)	FY99 ($MM)	FY00 ($MM)	FY01 ($MM)
Ceramic Retrofit Gas Turbine	$16.3	$6.5	$4.5	$2.0	$0.0	$0.0	$0.0
ATS Development and Demonstration Contracts	$8.8	$11.6	$16.2	$24.7	$23.4	$19.7	$6.7
Materials Base Technology Research	$6.0	$3.5	$4.0	$4.0	$4.0	$3.5	$3.0
Totals	$31.1	$21.6	$24.7	$30.7	$27.4	$23.2	$9.7

The cost savings in the Interior Bill due to down selecting early are not as great as would be expected for two reasons. First, any cost savings will go to closing out contracts in FY 1997. Second, the majority of savings will be in the Energy and Water Development Bill. The program receives funding from the Energy and Water Development Appropriations Bill, $5 million for FY 1997, to help fund one of the contractors to adapt the engine to biomass-derived fuels. As funding is reduced, DOE would ensure the highest priorities of the ATS program (energy savings, emissions reductions, cost savings) are met and and drop other priorities such as biomass applications. Early down selection will save $5 million in the FY 1997 Energy and Water Development Appropriations Bill.

In the final analysis, early down selection may actually lead to higher development costs. The two contractors in the EE program have taken two very different technology paths to get to the Advanced Turbine Systems program goals. Down selecting now would increase the technology risk since we would be pursuing only one path. Additional money and time may be required to ensure successful demonstration of an ATS engine.

Industry Sector

Question: Industry sector programs are proposed for a 31% increase in funding in fiscal year 1997. The program focuses on 7 key industrial areas in its "industries of the future" program. They are 1) forest and paper products, 2) steel, 3) aluminum, 4) metal casting, 5) glass, 6) chemicals, and 7) petroleum refining. Is the "industries of the future" program the number one priority of the Office of Industry Technologies? Please explain.

Answer: Recognizing the significant benefits that can accrue to the nation from improved energy efficiency in energy intensive industries, the Office of Industrial Technologies (OIT) has developed an Industries of the Future program and strategy to expedite partnerships between industry and government to develop advanced manufacturing and process technologies that will achieve national energy and environmental benefits and strengthen U.S. materials and process industries. The organization of the OIT budget is structured so that all major elements support this program and strategy at the requested level in a balanced approach.

Question: How would you restructure your budget for the Office of Industrial Technologies if you were to receive no increases for the Industries of the Future program in Fiscal Year 1997 and budget cuts were made against the balance of your program? (assuming a 10% cut)

Answer: The development and structure of the budget has evolved from the Industries of the Future strategy which was developed in response to national energy and environmental goals and in keeping with the research needs identified in concert with industry. At this time there is no budget restructuring anticipated.

Question: Why have you added a textiles partnership initiative to the industries of the future program? ($2 million requested for this new initiative)

Answer: The AMTEX partnership was added because the structure and the goals of the partnership complement and contribute to those of the other seven Industries of the Future programs, and are also consistent with the mission of the Office of Industrial Technologies (OIT). In addition, AMTEX will complement the Office of Energy Efficiency's mission to benefit the U.S. economy and society through the development of efficient and pollution-preventing technologies through the leveraging of DOE's resources by the textile industry.

The AMTEX initiative is not a new start, just a refocussing of existing DOE oversight responsibilities. The Secretary of Energy believed that AMTEX will be managed more efficiently by a single program structure in OIT than the present dual management system within the Offices of Energy Research and Defense Programs.

Question: Has work in the textiles area been conducted by DOE in the past? If so, where was it funded, at what level was it funded, and how does the work you propose to do in FY 1997 relate to what has been done in previous years?

Answer: Remarkable progress has been achieved in the three years since the inception of

AMTEX. Work done within the partnership between DOE and the textile industry has been funded through the DOE's Energy Research (ER), Defense Programs (DP), and (beginning in 1996) Environmental Management (EM) labs. Lab expertise is used in concert with industry to meet the challenges faced by textile industry - in the areas that industry have given their highest priority.

Since AMTEX began, approximately $30 million has been committed to the ER labs, about $20 million to the DP labs (through 1996), and, in 1996, about $700,000 from EPA and $300,000 from EM. Cost share by the industry has averaged 50% of all of DOE's contributions.

Work likely in 1997 under the proposed $12 million budget would contribute to the progress achieved in the previous years in the areas of "electronic marketplace" technology, and in pollution prevention and energy efficiency technologies. Continued funding of the partnership will insure that the economy and society will enjoy the benefits of DOE's prior investments.

More recently, the AMTEX partnership has been funded by DOE's Office of Energy Research and Office of Defense Programs as follows:

	FY 1995 Actual	FY 1996 Actual	FY 1997 Request
Defense Programs Tech. Transfer & Education	$10.0M	$7.3M	$0
Energy Research Lab. Technology Research	$12.6M	$3.0M	$0
Energy Conservation Industry Sector	$0	$0	$12.0M
Total	$22.6M	$10.3M	$12.0M

Motor Challenge

Question: What are you doing this year with the $5.2 million provided for the Motor Challenge program? (budget p. 510)

Answer: There are more than 40 million electric motor systems currently in operation in the U.S. industrial sector. The Motor Challenge program and partners provide the information and tools industry needs to make informed decisions to help them improve the efficiency of their electric motor systems. Motor Challenge efforts in FY 1996 are being focused to develop and expand a variety of partnerships with industrial end-user companies, suppliers, utilities, trade associations, and others. Resources are being targeted to respond to the enormous demand and need by industry for unbiased and reliable information and tools through case studies that demonstrate best practice. Our challenge is to accommodate this large demand from the marketplace at the least cost to the government. Accordingly, Motor Challenge activities and resources are being focused on three principal areas:

1) Industry Partnerships:

Since the inception of the program in 1993, industry has provided guidance which has resulted in partnerships in the following key areas:

a) **Trade Association partnerships** - Motor Challenge is cooperating with a variety of "supplier" trade associations. Motor Challenge is partnering with the Electrical Apparatus Service Association (EASA, motor repair industry), the Hydraulic Institute (HI, pump industry), the Compressed Air and Gas Institute (CAGI, air compressor industry), the Air Movement and Control Association (AMCA, fan industry).

b) **OIT Vision Team and Industry coordination** - Motor Challenge is working with the OIT vision industries to develop targeted Motor Challenge delivery strategies for each industry. In the majority of Industry of the Future Visions industry has designated motor systems as an important area of opportunity to accomplish their goals.

c) **Allied Partner program** - This partnership effort was designed by Motor Challenge and its partners to accommodate the demand for Motor Challenge products. Allied Partners develop an Action Plan with Motor Challenge to deliver a variety of tools, information, and training . By the year 2000, 400 Allied Partners will be delivering Motor Challenge information, software, and training curriculum to over 100,000 manufacturing plant people.

d) **Excellence Partner program** - Excellence Partners are end-user companies that commit to develop and implement a plan to continually improve their motor system management practices. Excellence Partners will track and report their results. 800 Excellence Partner sites are projected to be operating by 2000 saving on average, $300,000 annually in motor system energy costs.

e) **Showcase Demonstrations -** This demonstrates, in different industrial settings, best practices of a variety of motor systems applications. The 33 Showcases Demonstrations that are currently in place are investing $15 million collectively and will save approximately $5 million annually. DOE provides no direct financial assistance to the Showcase teams, but provides technical assistance, an independent performance validation, and develops a case study for each project.

2) Tool and Information, Development and Dissemination: This part of the Program provides the infrastructure for the Program to accommodate the overall needs of the Motor Challenge partners, over 1,200 at this time. Some of the available tools, information and related services include the Motor Challenge Information Clearinghouse which has to date received over 5000 inquiries; Motor Master, Motor Master + (an enhanced version), and ASD Master software which assist end users to specify and choose the right motor and/or drive for their applications; and training curriculum and workshops available on various topics such as: basic motor application, motor repair, efficient motor systems in waste water treatment plants, performance optimization, and Motor Master +.

3) Market Assessment: This part of the Program helps to understand and characterize how industry is using, applying and purchasing all types of motors, drives, and motor-driven equipment; information which is crucial for effective program design. Market Assessments also support development of the quality metrics to measure program impact and results.

Question: How do you propose to expand this program in fiscal year 1997? ($5.2 million in 1996 and $7,350,000 requested in 1997)

Answer: Expansion of the Motor Challenge program will principally be directed to developing, expanding and accelerating those portions of the program that have been proven effective. We will focus on developing the necessary channels to reach users at the plant level. To accomplish this we will focus on the following areas:

a) OIT Vision Industry Partnerships: The Motor Challenge/ Forest Products industry partnership efforts in FY 1996 will be expanded to the other vision industries.

b) Allied Partner Program: The number of Allied Partners will double in FY 1997 from FY1996 - from 50 to 100. This will require a proportional amount of customized services for these new Allies.

c) Excellence Partner Program: In addition to our current partners Dupont and 3M, eight Excellence Partner companies are targeted to be participating by the end of FY 1996. As with the Allied Partner Program, these companies will require the tailored assistance and resources necessary for the development of successful programs.

d) Showcase Demonstrations - Approximately 20 to 25 ongoing Showcase Demonstrations will continue to need support thru FY1997. Program needs will be intensified in FY1997 as project implementation nears completion.

All of these activities are highly leveraged by DOE with industry partners. Motor Challenge resources are strategically placed to accommodate voids in industry where companies or organizations are not in the position to support the necessary activities and efforts solely on their own.

National Industrial Competitiveness through Energy, Environment, and Economics (NICE3)

Question: What is the NICE ^{3} (pronounced "nice cubed") program and why do you propose to increase funding for the program from $6 million in fiscal year 1996 to $12 million in fiscal year 1997? (budget p. 511)

Answer: The National Industrial Competitiveness through Energy, Environment, and Economics (NICE^3) is a highly leveraged and cost-shared State agency/industry grant program. NICE^3 was started in 1991 to fund cost-saving industrial demonstration projects with high energy and waste savings. NICE^3 seeks proposals from State agencies and industry that save energy, reduce pollution through either pollution prevention or recycle, and save dollars. Benefits of the projects include material savings, energy savings, pollution avoided savings, operations savings, and job retention/ job growth savings through improvements to the industries' competitiveness. Each year a national solicitation is run requesting applications through state agencies. Eighty state agencies are currently active in the program. Through 1995 over 320 grant applications have been received from 45 states and territories totaling about $100 million in requested federal funds. To date, 47 grants have been awarded in 21 states, with an average value of $310,000. Maximum one time grant size is $425,000, with no follow on federal funding allowed. State agencies are the applicants, but they must have an industrial cost-sharing partner, preferably a technology developer and a host end user of the technology. Minimum required cost-shares from industry are currently 55% of total project costs, and will go up to 60% in FY 1997. The average cost share is 3.8 dollars for every federal dollar.

The budget increase requested for NICE^3 is intended to produce and increase substantial benefits for the federal investment. All additional funding will be used to purchase new projects. We were able to fund approximately half of the top tier of qualified proposals last year and expect the same to be true this year.

Question: How high a priority is the NICE^3 program as compared with your industries of the future program?

Answer: The NICE^3 program is one of several technology access programs that are designed to promote the introduction of advanced, energy efficiency, renewable energy and pollution prevention technologies to industry. A major program focus will be the technology developed through the Industries of the Future program. With this integrated approach to technology development and adoption, it is not possible to trade off NICE^3 versus other program elements per se.

Question: What is the difference between NICE^3 and your partnerships for technology introduction for which you are requesting $3.4 million in 1997; up from $2 million in 1996? (Budget p. 512-513)

Answer: The second program referred to is Climate Wise. The two programs differ in several substantial respects. In broad terms, Climate Wise increases the implementation of existing energy efficiency and pollution prevention technologies that are cost-effective and environmentally beneficial. Climate Wise does this by partnering with industrial companies to set voluntary performance targets for energy efficiency and greenhouse gas emissions reductions. Participating companies identify and implement specific projects that will lead to meeting their targets, and report on their results. The program does not provide funds directly to these partners, but instead provides tools and facilitates the provision of technical and financial resources so that appropriate projects can be identified, evaluated, financed, and successfully implemented. In addition, Climate Wise provides performance-based recognition. Both the Nation and the industrial partner benefit from the increased competitiveness through increased energy efficiency and pollution prevention. In contrast to Climate Wise, NICE^3 (described fully in 68. above) demonstrates new technologies which offer benefits in three areas: energy, economics, and environment. NICE^3 makes monetary grants to states/industry partnerships that are already formed and have submitted proposals to demonstrate new technology at a specific site. Climate Wise is not a grant program and focuses on the implementation of proven technologies. Climate Wise partners develop their action plans after setting initial targets; NICE^3 selects partnerships that already have a competitive plan.

Question: What would be the impact of eliminating one or both of these programs in fiscal year 1997?

Answer: Eliminating these programs would negatively impact the Nation's potential to meet international commitments for reducing greenhouse gas emissions. Climate Wise is projected to reduce these emissions by 3 million tons or more annually by 2000 in addition to the projected energy savings of 149 trillion BTUs, costing companies throughout the country more than $600 million. Also, participating companies will be frustrated by the termination of this new program after just two years of funding. Climate Wise has received significant commitments from these companies through the year 2000 based on mutual expectations. Companies see Climate Wise as an opportunity for industry and government to demonstrate that a voluntary approach to environmental problems is a cost-effective alternative to command-and-control solutions.

Elimination of the NICE^3 program would eliminate a projected $540 million in energy and waste benefits per year. Due to a variety of reasons including lack of capital funds and information, industry alone will not adopt programs to achieve these benefits.

In addition to the substantial loss of benefits from reduced energy consumption and pollution, these programs also serve the Office of Industrial Technologies' Industry Visions of the Future providing currently available tools, assistance and information to existing partners and channels to deliver successfully developed R&D.

National Laboratory Funding

Question: To what extent is the level of National laboratory participation in your programs increasing in fiscal year 1997?

Answer: Laboratory funding for the Energy Efficiency programs increases an estimated $33.7 million, or 18 percent; from an estimated $192.0 million to $225.7 million.

Question: Please provide details for FY 1995, 1996, and 1997 in the same fashion as in previous years.

Answer: The following information reflects the actual and planned funding for Energy Efficiency programs at the National Laboratories.

Energy Conservation Lab Summary
(Dollars in Thousands)

	Los Alamos National Lab			Sandia National Lab		
	FY 1995 Actual	FY 1996 Planned	FY 1997 Planned	FY 1995 Actual	FY 1996 Planned	FY 1997 Planned
Bldgs. Tech., State, & Community Sector	$0	$0	$0	$0	$0	$0
Industry Sector	4,715	4,456	2,763	4,716	4,777	2,360
Transportation Sector Program	2,366	700	3,450	2,420	2,830	5,739
Utility Sector	0	0	0	0	0	0
Federal Energy Management Program	5	5	5	85	130	150
Policy and Management	0	0	0	0	0	0
Total Energy Conservation	$7,086	$5,161	$6,218	$7,221	$7,737	$8,249

	Ames Lab			Argonne National Lab		
	FY 1995 Actual	FY 1996 Planned	FY 1997 Planned	FY 1995 Actual	FY 1996 Planned	FY 1997 Planned
Bldgs. Tech., State, & Community Sector	$0	$0	$0	$125	$175	$250
Industry Sector	225	150	150	7,864	14,530	4,267
Transportation Sector Program	0	0	0	6,127	6,795	8,275
Utility Sector	0	0	0	0	0	0
Federal Energy Management Program	0	0	0	5	5	5
Policy and Management	0	0	0	396	102	102
Total Energy Conservation	$225	$150	$150	$14,517	$21,607	$12,899

	Brookhaven National Lab			Nat'l Renewable Energy Lab.		
	FY 1995 Actual	FY 1996 Planned	FY 1997 Planned	FY 1995 Actual	FY 1996 Planned	FY 1997 Planned
Bldgs. Tech., State, & Community Sector	$1,400	$1,550	$550	$7,195	$6,605	$12,700
Industry Sector	0	0	0	9,153	3,786	4,268
Transportation Sector Program	500	500	0	49,889	47,450	64,800
Utility Sector	0	0	0	1,784	0	0
Federal Energy Management Program	5	5	5	6,364	6,500	6,700
Policy and Management	0	0	0	1,140	1,100	1,013
Total Energy Conservation	$1,905	$2,055	$555	$75,525	$65,441	$89,481

Energy Conservation Lab Summary
(Dollars in Thousands)

	Idaho Nat'l Engineering Lab			Oak Ridge National Lab		
	FY 1995 Actual	FY 1996 Planned	FY 1997 Planned	FY 1995 Actual	FY 1996 Planned	FY 1997 Planned
Bldgs. Tech., State, & Community Sector	$0	$0	$0	$18,011	$16,946	$20,510
Industry Sector	4,890	1,270	0	19,497	21,808	19,975
Transportation Sector Program	3,860	2,275	1,775	34,631	32,819	38,784
Utility Sector	0	0	0	1,000	0	0
Federal Energy Management Program	5	5	5	165	800	1,500
Policy and Management	0	0	0	444	1,100	847
Total Energy Conservation	$8,755	$3,550	$1,780	$73,748	$73,473	$81,616

	Pacific Northwest Lab			Lawrence Livermore Lab		
	FY 1995 Actual	FY 1996 Planned	FY 1997 Planned	FY 1995 Actual	FY 1996 Planned	FY 1997 Planned
Bldgs. Tech., State, & Community Sector	$11,092	$6,382	$11,730	$0	$0	$0
Industry Sector	4,952	855	730	300	0	0
Transportation Sector Program	1,562	1,925	3,332	225	428	2,858
Utility Sector	340	0	0	0	0	0
Federal Energy Management Program	2,682	2,600	2,700	5	5	5
Policy and Management	123	1,445	1,130	0	0	0
Total Energy Conservation	$20,751	$13,207	$19,622	$530	$433	$2,863

	Lawrence Berkeley Lab			Energy Tech. Engineering Ctr.		
	FY 1995 Actual	FY 1996 Planned	FY 1997 Planned	FY 1995 Actual	FY 1996 Planned	FY 1997 Planned 49
Bldgs. Tech., State, & Community Sector	$14,771	$12,177	$16,925	$0	$0	$0
Industry Sector	700	1,025	3,300	0	0	0
Transportation Sector Program	2,395	2,000	2,500	400	0	0
Utility Sector	1,819	0	0	0	0	0
Federal Energy Management Program	1,426	1,500	1,600	406	30	0
Policy and Management	99	100	56	0	0	0
Total Energy Conservation	$21,210	$16,802	$24,381	$806	$30	$0

Energy Conservation Lab Summary
(Dollars in Thousands)

	Total All Labs		
	FY 1995 Actual	FY 1996 Planned	FY 1997 Planned
Bldgs. Tech., State, & Community Sector	$52,594	$43,835	$62,665
Industry Sector	57,012	52,657	37,813
Transportation Sector Program	104,375	97,722	131,513
Utility Sector	4,943	0	0
Federal Energy Management Program	11,153	11,585	12,675
Policy and Management	2,202	3,847	3,148
Total Energy Conservation	$232,279	$209,646	$247,814

Policy and Management

Question: You have closed 5 support offices and reduced headquarters staffing, why then is there such a small reduction in your policy and management budget? (budget p. 518) ($29.6 million in 1996 and $28.4 million in 1997)

Answer: To clarify, 4 offices were closed and one, Denver, was colocated with the Golden Field Office. The Policy and Management budget includes a reduction of $4.6 million for activities at the Support Offices and Headquarters. Specifically, the closing of the support offices results in a reduction of $2.9 million in FY 1997 and planned staff reductions at Headquarters will result in a funding reduction of $1.7 million. However, these reductions are offset by an increase of $1.9 million at the Golden Field Office and an increase of $1.5 million primarily for Information and Communications programs.

Question: Why is staffing at the Golden Field Office increasing from 24 in 1996 to 40 in 1997?

Answer: Although the total Energy Efficiency FTEs are being reduced 53 FTEs, from 497 FTEs in FY 1996 to 444 FTEs in FY 1997, the staffing for the Golden Field Office is increasing by 16 FTEs for several important reasons. The increase is needed to support the transfer of Headquarters program management to the field as planned for in EE's streamlining and Strategic Alignment Initiatives and to support the consolidation of EE's procurement management function from the Regional Support Offices to Golden.

Question: Funding for the Golden Field Office increases from $3 million in 1996 to $4.9 million in 1997. Please explain the increase.

Answer: Funding for the Golden Field Office increases $1,887,0000 in FY 1997, from $3,018,000 in FY 1996 to $4,905,000 in FY 1997. Most of the funding increase, a total of $1,352,000, supports federal salaries, benefits, and travel for 16 additional FTEs in FY 1997. The balance of the increase, a total of $535,000, is primarily for the rental payments, communications, utilities, printing and reproduction, and support services for the additional staff.

Question: Why does the information and communications program funding increase from $1.6 million in 1996 to $3 million in 1997? (budget p. 535)

The funding increase supports critical activities related to information dissemination about energy efficiency and renewable energy technologies through the Energy Efficiency and Renewable Energy Clearinghouse, known as EREC, and the Energy Efficiency and Renewable Energy Network, referred to as EREN. EREC includes a comprehensive program to provide tailored information and technical and business assistance to individuals, small businesses, and State and local governments. EREN will permit existing State, private, and laboratory data bases to be linked to facilitate the exchange of information through the Internet. These efforts will enhance the use of efficiency and renewable energy technologies by reducing market barriers through direct education of consumers.

QUESTIONS SUBMITTED BY CONGRESSWOMAN BARBARA VUCANOVICH

Pay Backs on Federal Investments in New Technologies

Question: For all the reasons you mentioned in your testimony -- energy security, reduced costs, and improving environmental quality -- I agree with you that increasing energy efficiency is an important goal. However, as you know these are lean funding times, and in this regard I appreciate the extent to which you are seeking to reduce costs.

When the Office of Energy Efficiency and Renewable Energy participates in the development of a new technology (for instance, through the Heavy Duty Engine Research and Development program or the Advanced Ceramic Manufacturing Technology project), do you receive any financial benefit? That is, do the companies that you work with pay back the federal share of developing a new technology or do you directly benefit from the marketing of new technology?

Answer: Enhanced energy security, reduced costs, and improving environmental quality are among the pay backs that the American people receive from our contracted research and development with America's industry. In addition, the enhanced competitiveness of a corporation enables the company to be profitable and able to provide jobs and provide revenue to the Treasury in the form of taxes. Financial pay back by companies from their successful commercialization of a technology that received Federal funding has been considered in the past, but in most cases, including those under the Energy Policy Act of 1992, were considered to be impractical. It is difficult to determine when, where, and by whom the technology was developed. It will usually be several years before a technology is commercialized, and the company will have invested or risked many times more funds in this effort than the original Federal share. Patent rights to inventions made under the contracted research and development reside with the Government; however, DOE will often waive title in advance to companies for large cost-sharing and other factors, including the company's ability and commitment to commercialize the technology. Cost sharing of 50 percent or more is obtained from large business for contracts that have commercial potential. For greater pay back, a substantial staff of engineers, lawyers, accountants, and others would be required to administer the patents and collect the future royalties. In general, it has been concluded that this would not be worthwhile.

Natural Gas Cooling

Question: I am interested in the potential of natural gas cooling technologies in Nevada. Las Vegas is the site of the first community of new homes to offer York International's Triathlon - a state of the art natural gas heating and cooling system. Can you describe the Energy Department's research program relating to the next generation of high efficiency gas cooling products?

Answer: The Department is knowledgeable of the York Triathlon engine driven heat pump. The Department, through Phillips Engineering Co., a small business in St. Joseph, MI, has developed a first generation natural gas fired residential absorption heat pump that uses Ammonia/Water to heat and cool. The Department is working with Carrier Corporation to develop the heat pump for residential and light commercial applications and should be introduced into the marketplace by the year 1999. This heat pump uses a technology call the Generator Absorber Heat Exchange (GAX) cycle. This heat pump has a Coefficient of Performance (COP) of 1.6 in heating, and 0.7 in cooling. Its heating performance is 50% better than the best gas furnace on the market. It cooling performance is comparable to a conventional electric air conditioner. The GAX heat pump uses no CFC refrigerants, has very low emissions, and burns natural gas very efficiently. The Department is developing a second generation residential absorption heat pump named "Hi-cool". The "Hi-cool" heat pump will have a cooling performance that is 30% higher than the GAX heat pump, and will capture more of the cooling market that the GAX which is basically designed as a northern climate heat pump.

The Department is working with York International to develop a large commercial chiller (400 Tons) technology called the Double Condenser Coupled (DCC) that uses Lithium Bromide/Water as the working fluid. The cooling Coefficient of Performance (COP) of this unit will be 1.4 or better. The successful completion of this program will give the United States the lead in gas cooling performance which was lost to the Japanese. Market entry of this technology is scheduled for 1998.

The Department is also working with desiccants to enhance the performance of cooling technologies in the market today. The Department is working with major manufactures of HVAC equipment and desiccant systems to integrate the two technologies into a complete system for improving cooling performance and indoor air quality.

Question: How much have you requested for these program for the fiscal year 1997 and what has your budget been over the past five years.

Answer: The FY 1997 request for gas cooling and absorption technology under the Thermally Activated Heat Pump program element is $7,748,000. The budget appropriations for FY 1992 = $6,023,000; FY 1993 = $5,946,000; FY 1994 = $6,800,000; FY 1995 = $8,512,000; FY 1996 = $5,878,000.

Question: Who are the major cost-share partners in this program and what is the total industry cost-share for these programs.

Answer: Cost-sharing for these programs is shown below:

ABSORPTION TECHNOLOGY:

Carrier Corporation	- 22%	- GAX technology
York International	- 35%	- DCC technology
Gas Research Institute	-18%	- GAX Technology
Gas Utilities	-18%	- GAX Technology

Total Industry Cost Share (average) 24%

DESICCANT TECHNOLOGY:

ICC-Englehard/Carrier	- 50%
SEMCO/Trane	- 50%

Question: How are these programs addressing the need for new cooling technologies created by the ban on ozone-depleting chemicals under the Montreal Protocol?

Answer: The absorption technologies use refrigerants that contain no chlorine and therefore do not contribute to Ozone depletion in any way. The GAX technology used for residential/light commercial uses Ammonia/Water as its fluid, the Ammonia is the refrigerant. The DCC cycle, large commercial chiller uses Lithium Bromide/Water as its refrigerant with the water as the refrigerant. Both technologies burn natural gas very efficiently therefore they have little impact on global warming.

Question: Can you give me a status report of DOD funded research in two areas: The GAX heat pump and the desiccant cooling program?

Answer: To the Department's knowledge, there is no research in the GAX absorption technology or desiccant cooling being funded by the Department of Defense.

Natural Gas Vehicles

Question: In my area, Southwest Gas Corporation has been a leader in establishing natural gas as an alternative to conventional fuel for vehicles. The natural gas vehicle industry had identified high-fuel use and medium-to-heavy-duty vehicles as their target for the future. How do these priorities fit into DOE's priorities?

Answer: The DOE heavy vehicle program places strong emphasis on alternative fuels; natural gas is and will continue to be a major element of this program. In FY 1997, the Alternative Fuels R&D program will complete evaluation and demonstration of a compressed natural gas storage system in three prototype heavy duty vehicles; initiate development of three medium duty class engines for alternative fuel operation; and demonstrate the operation of a heavy duty diesel engine using direct injected natural gas. The Department feels that medium-to-heavy duty vehicles are prime candidates for natural gas use, since these vehicles are most often operated in fleet activities involving centralized fueling facilities. Use of centralized fueling facilities is an answer to the current lack of fueling infrastructure available for natural gas.

QUESTIONS SUBMITTED BY CONGRESSMAN SIDNEY YATES

Funding for Argonne National Laboratory

Question: Please provide for the record a summary detailing how Argonne National Laboratory funding is treated in your FY 1997 request for energy conservation.

Answer: They FY 1997 request includes an estimated $12.8 million for Argonne National Laboratory. This includes $4.2 million for continuation of Industry Technology research program, $8.3 million for Transportation programs, $0.3 million for Buildings Technology, State, and Community Programs.

Electric Vehicle Battery Technology

Question: What progress has been made in DOE battery technology in FY 1996? Please provide a summary table detailing how battery technology funding is treated in your FY 1997 request.

Answer: The United States Advanced Battery Consortium (USABC) is continuing with sponsorship from DOE. During FY 1996, the Consortium achieved the following levels of performance in its mid-term nickel metal-hydride batteries: specific energy of 65 to 75 watt-hours per kilogram toward a goal of 80 watt-hour per kilogram; specific peak power levels of 170 to 200 watts per kilogram, which is in the desired range; and battery cycle life of 250 to 450 cycles, which is still short of the 600 cycle goal. Mid-term battery cost is projected to be about $400/kilowatt-hour, which still needs to be reduced significantly to reach the $150/kilowatt-hour goal.

In the long-term batteries, technical feasibility has been demonstrated in small cells operating at mid-term performance levels with production intent materials. Improvements in the materials and scale up is required in the next phases of the long-term development efforts.

The projected use of the USABC funding in FY 1997, at an anticipated cost share of 45 percent for DOE, is as follows:

- Cost reduction of mid-term technologies - 25 to 30 percent
- Long-term technology development - 55 to 65 percent
- In-kind costs, laboratory testing, and supporting engineering - 10 to 15 percent.

Municipal Energy Management Program (MEMP)

Question: Please provide a summary table detailing how the Municipal Energy Management Program (MEMP) funding is treated in your FY 1997 request.

Answer: The Municipal Energy Management Program budget is included as part of the State and Local Partnership Technology Programs in the Building Technology, State and Community Sector of the DOE Energy Efficiency Budget (included on page 419 of the Departments 1997 budget).

(Dollars in millions)

FY 95	FY 96	FY 97
$1.8	$1.8	$1.6

MEMP provides a coordinating role in the technology process by conducting symposia, workshops, teleconferences, and a Peer to Peer Program which allows energy managers nationwide to share information. In addition to MEMP, municipalities may participate in the Rebuild America program which provides technical assistance products, training services and financial assistant to support the formation of community-wide partnerships that can plan and carry out energy efficient retrofits in the participating community's commercial and multifamily buildings.

Question: What impacts do you anticipate this program will have in FY 1997?

Answer: The FY 97 request will result in a reduction from 20-25 projects down to 18-20. More emphasis will be put on deployment of the 300 + successful projects previously funded via publications, electronic networks and other resources within the Office of Building Technology, State and Community Programs. The 1997 Budget Request will leverage $3,300,000 private sector dollars for MEMP activities, generating an annual direct energy displacement of 167 BBTU at source.

Weatherization Assistance Programs

Question: Will your FY 1997 budget request for Weatherization Assistance Program satisfy the demand of those low-income Americans who need this assistance?

Answer: The FY 1997 request for the Weatherization Assistance Program is $155,500,000. Even factoring in the homes weatherized with Low In-Income Home Energy Assistance Program (LIHEAP) funds and non-Federal leveraged funds there are large numbers of low-income Americans who remain on long waiting lists to receive services.

The FY 1997 request does provide the minimum funding necessary to support the network of 750 local weatherization agencies throughout the Nation. These agencies target the most needy of the 30.7 million eligible households so that those with the highest energy burden or health and safety risk, especially the elderly and families with children, are serviced first.

With the FY 1997 request, the Program will rebound somewhat from a 50 percent downsizing in FY 1996, restoring it to 72 percent of its FY 1995 appropriated level. At this level, an estimated 79,000 homes will be weatherized, an increase 22,500 over FY 1996 (but still 36,000 fewer than FY 1995). Weatherization Assistance is the critically important core program for leveraging, through its network of State and local agencies, hundreds of millions of additional funds from LIHEAP and from utilities and housing resources. We believe that the FY 1997 request of $155,500,000 is the minimum level needed to maintain this vital core function.

QUESTIONS SUBMITTED BY CONGRESSMAN NORMAN DICKS

Federal Energy Management Program

Question: The Department of Energy and other witnesses have mentioned the advantages of energy savings performance contracting (ESPC). For example, they provide the Federal government with access to private sector funds for energy efficiency improvements in Federal buildings. If private sector funds are available, why has the Department of Energy proposed an increased fiscal year 1997 appropriation for Federal energy management?

Answer: Energy savings performance contracting (ESPC) is the most likely source of the billions of project dollars needed to achieve a 30% energy reduction. The private sector can supply investment dollars needed for the projects themselves, but there is critically important project development needed to obtain those investments. In order to accelerate the pace and increase both the number and quality of ESPCs, we are asking for a $13 million increase in FY 1997. That will allow us to help agencies develop and issue more requests for proposals to obtain private sector investments. We see no other way for the government to tap the enormous savings from energy efficiency. We already have $9 billion "in the bank" from energy savings since 1985. Those are proven savings. We anticipate a potential deficit reduction of $15 billion in net cumulative savings from 1995-2015. The proposed budget of $32 million is critically important to get those projects in place.

There are three sources of funds for energy efficiency projects at Federal facilities: appropriations, utility incentives and energy savings performance contracting (ESPC). The first two are declining rapidly. Appropriations to the Department of Defense (DOD) fell from $170 million last year to about $75 million. At both the General Services Administration (GSA) and DOE, funds have gone from $80 million total to zero. Utility rebates are drying up all over the country, although utilities are beginning to *finance* projects instead of give rebates. These budget cuts and corresponding staff reductions make our work more important than ever.

Question: DOE representatives, and other witnesses, have mentioned the significant energy efficiency improvements that are being achieved by the Department of Defense at its facilities. Reportedly, energy efficiency improvements at Department of Defense facilities will save the Department more in its own operation than in all base closures. Is that correct? If so, how has the Department of Defense managed to achieve these savings when other agencies have not been able to do so?

Answer: The DOD has made considerable progress and has achieved the 10% energy reduction goal a year earlier than the 1995 target date. In fact, nine other agencies have also achieved the 10% reduction goal. We cited progress at DOD to demonstrate the collaboration between DOE and DOD to achieve those results. The Director, Energy and Engineering in the Office of the Secretary of Defense has offered to testify about the value of our services. The Energy Resource Management Program in DOD is estimated to save more in operations and maintenance costs than all of the recent round of base closures. For example, in 1995 DOD has achieved a cost avoidance of approximately $380 million compared to a 1985 baseline. These annual savings will continue for years to come due to the long life of the funded efficiency projects.

However, the DOE, the Department of Justice and the Federal Emergency Management Agency have achieved even more striking results. DOE is one of three Federal agencies that have already achieved the 20% goal, six years ahead of the year 2000 target date. In fact, energy efficiency improvements in DOE alone for 1985 to 1994 have returned over $940 million to the government and will return additional savings of approximately $1.2 billion through 2016.

Question: Has the Department of Energy managed to achieve comparable savings at its own facilities? Shouldn't the Department of Energy be the "pace setter" within the Federal government?

Answer: The Department of Energy, as the second most energy intensive and second largest energy consumer of the civilian agencies, is setting the pace. It is a leader in improving energy efficiency in its facilities, reducing energy consumption per gross square foot by over 23 percent from the 1985 baseline. This surpasses the Federal year 2000 goal six years in advance. DOE's In-House Energy Management program has achieved cumulative avoided energy costs in excess of $940 million since its inception in the late 1970s, with an additional $1.2 billion savings to accrue through FY 2015 from investments in place by FY 1994. Meeting the Department's energy savings goals in 2005 would result in cumulative net energy cost savings of $2.6 billion from 1985 levels.

In addition to efficiency efforts in our own facilities, the Department has also reduced its consumption of fuels for vehicles and equipment by almost 30 percent since FY 1985, while reducing its energy consumption per square foot in its process facilities by over 45 percent in the same time period. One excellent example of reduction in vehicle fuels was accomplished at Idaho National Engineering Laboratory (INEL), which conducted a Transportation Study funded by the In-House Energy Management Program (IHEM). The laboratory reduced its transportation costs and environmental pollution by optimizing its transportation system. Actions undertaken include switching to alternative fueled buses and other vehicles and reducing the total number of vehicles by increasing the efficiency of its bus routes. In 1994, the INEL had 141 diesel powered buses in its fleet. These buses traveled almost 6 million miles transporting 5,000 persons to and from the site. Today the fleet includes 123 buses, including 1 using liquified natural gas, and is expected to travel less than 4 million vehicles miles--for savings of over 300,000 gallons of diesel fuel and $300,000.

The significant reduction of process energy use is also attributable to the IHEM Program retrofit projects that were funded in this area. One example of the complexity of these IHEM projects in our process areas, is the retrofit of an accelerator cooling system. The Continuous Electron Beam Accelerator Facility operates the world's largest helium refrigeration system and consumes nearly 6 megawatts of power a year. The project consists of constructing a cold box to store liquid helium that is normally stored in the accelerator. Addition of this standby refrigeration system will allow complete accelerator shutdown and reduce the site's contracted costs for liquid nitrogen. The project will save over $340,000 per year and pay for itself in less than 3 years, and continue to save even more funds for the life of the facility.

Question: Would you agree that all Federal agencies have the necessary statutory authority to enter into energy savings performance contracts? If so, would you explain the reluctance by some contract officers to enter into such contracts; for example, at the Veterans Administration.

Answer: Yes, in general. Federal agencies have the necessary statutory authority to enter into energy savings performance contracts for building energy efficiency projects. On April 10, 1995, the Department of Energy and the Federal Energy Management Program published in the Federal Register the final rule for Energy Savings Performance Contract Procedures and Methods that will significantly increase energy and cost savings in the Federal sector. The Energy Savings Performance Contract (ESPC) Rule establishes a program to accelerate installation of energy efficiency measures in existing Federally-owned buildings through energy savings performance contracts.

DOE published the notice of proposed rulemaking under section 155 of the Energy Policy Act of 1992 on April 12, 1994. DOE held a public hearing on June 1, 1994, and the closing date for receipt of written comments was June 10, 1994. DOE fully considered all of the suggestions and arguments made in the comments in revising the proposed regulations and The draft model solicitations. The final rule, issued on April 10, 1995, had an effective date of May 10, 1995. With the issuance of this final rule, Federal agencies now have the regulatory flexibility to meet the requirements of Executive Order 12902. Although agencies have the basic authority and procedures needed to execute energy savings performance contracts, there are several critically important actions needed.

- Introductory material to the rule suggests that what is now necessary is "action by senior agency officials, an appropriate agency priority on employing energy savings performance contracts, development and maintenance."

- Each agency has its own procurement practices. In the case of the Department of Veterans Affairs, the VA has determined a need to develop its own procedures consistent with its interpretation of the relevant laws and its own circumstances.

- The Federal Energy Management Program has also coordinated the efforts of an inter-agency committee which has identified barriers to the increased use of Energy Savings Performance Contracting in the Federal sector. That committee has developed a list of recommendations for changes to the existing authority for Energy Savings Performance Contracting. In addition to clarification, these changes involve an extension of the authority to cover areas which offer significant additional savings potential for the government. These extensions of authority include allowing ESPCs for water conservation projects and for energy efficiency improvements in mobile equipments such as ships, aircraft, and land vehicles.

Another change involves the clarification of authority to use Energy Savings Performance Contracts in new building construction. This clarification will expand the use of ESPC in the most critical phase of a building's life, when the most cost effective equipment can be installed in the building. While one pilot project for an ESPC in new construction is underway, clarification of the authority would eliminate any further confusion about the authority to use this valuable financing mechanism at a time when it can have the largest effect on a building.

Other suggested clarifications deal with the accounting for cost savings from non-energy accounts when an Energy Savings Performance Contract is undertaken, and the ability to negotiate directly with energy service companies which have been competitively selected by local utilities for work within a utility district.

Extension and clarification of this authority is likely to generate several hundred million dollars in additional annual savings from Federal energy and water expenses and reduce capital outlays for new construction. The energy efficiency projects will also provide environmental benefits as well as create jobs in many efficiency and defense related industries that have been adversely affected by defense downsizing.

Question: It has been recommended that the Congress direct each Federal agency to comply with Section 548(b) of the National Energy Conservation Policy Act by modifying their procurement regulations to specifically reflect the DOE's regulations on energy savings performance contracting. Would you support such a directive from the Congress or this subcommittee?

Answer: While requiring all agencies to modify their procurement regulations to specifically reflect the DOE procurement regulations on ESPC would ensure uniformity across all agencies, it would not be necessary given the recent progress we have seen from the majority of agencies in implementing ESP contracts. In addition, separate authorizing legislation for the Department of Defense has established a successful program within DOD for implementing ESP contracts and, while it is similar to programs using the DOE regulations, it does not require revision to take advantage of the ESPC approach.

The Department of Energy, through the Federal Energy Management Program, has embarked on a course of action which is designed to accomplish the same objectives as changing agency procurement regulations to match the DOE regulations. FEMP will be issuing a series of ESP contracts that will be available for all agencies and facilities to use to procure energy services. These centralized ESPCs will allow DOE to procure the energy services under the FEMP "Energy Saver" Performance Contracts, and all agencies will be allowed to use the contracts to achieve energy efficiency at their own facilities. The first of these is expected to be issued this year. This approach should effectively remove any agency procurement obstacles to the use of ESP contracts.

Question: The DOE has observed that, through the use of energy savings performance contracting, the Federal government can finance the installation and maintenance of energy efficient equipment with non-government funds. What is the DOE's in-house record with regard to energy savings performance contracting? For example, how many ESPC contracts has the DOE entered into since January 1, 1993?

Answer: Since January 1993, the Department of Energy has signed one ESPC for the relighting of the Headquarters Forrestal Building. The Department has also issued three solicitations for ESP contracts and issued one notice requesting expression of interest in a proposed ESPC. The Department is also preparing an ESPC for use by all DOE facilities requiring chiller retrofits.

In addition to the contracts directly between the Government and energy service companies, many of the Department's Management and Operations contractors have entered directly into performance based contracts to achieve operating efficiency at their facilities. Many of these contracts closely parallel the DOE contracts or use utility contracting authority to gain access to energy service companies and private financing. One contractor entered into a mechanism similar to an energy savings performance based contract for a central steam plant replacement and another is investigating the use of a cogeneration/site wide efficiency ESPC with possible solicitation in 1996.

With the In-House Energy Management Program eliminated in FY 1996 after two decades of continuous appropriations, Department energy managers are becoming more innovative and must seek all the resources available to them. A brief list of these Government and contractor initiatives follows:

1) Government ESPC awarded:

Forrestal Headquarters Relighting: Awarded 1993, 63% lighting energy reduction, $342,000 per year savings (EUA Cogenex and PEPCO utility rebate)

2) Government ESPC nearing award:

Richland site-wide steam ESPC: Issued solicitation 1994, received proposals 1995, selected contractor, appeal by other proposer, awaiting resolution by Richland Operations Office potential, private sector investment of $25 million.

3) ESPC solicitations released but not awarded:

Kansas City Plant: Issued RFP 1994 for ESPC cogeneration. Received eight proposals, held bidders meeting. Procurement boards selected competitive range. Pending final negotiation by DOE Operations Office of new lower utility rate schedule which will impact the economics of the cogeneration project.

FermiLab ESPC/CRADA: Issued solicitation 1995 for ESPC to finance HySave chiller retrofit technology (CRADA). No proposals received. Currently being revised for possible reissue.

4) Other third party financed initiatives:

Pantex Facility: A site-wide ESPC is under development to accomplish a variety of energy efficiency measures.

Lawrence Livermore National Laboratory: Sitewide ESPC to be issued 1996, issued Notice requesting Expressions of Interest, received 22 responses, draft Request for Proposals for technical proposals under review.

DOE headquarters: Energy Saver Performance Contract for integrated chiller/energy efficiency retrofits at all DOE facilities, draft solicitation by Lawrence Berkeley National Laboratory in review, expect Headquarters award in 1996.

Los Alamos National Laboratory: Third party financed contract (similar to ESPC) awarded 1995 by the Laboratory's Management and Operating contractor (University of California) to a subcontractor. Included replacement of central steam distribution system with distributed modular boilers. Savings of approximately $100,000 per year plus $1.2 million in infrastructure replacement.

Argonne National Laboratory: Investigating ESPC solicitation for 25 MW cogeneration/sitewide conservation to be issued in 1996.

Facilities Energy Cost Savings Initiative: Headquarters-developed 1995 program for integrated cogeneration and sitewide conservation via ESPC/third party financed contracting. Projected $200 million savings at DOE sites in next ten years. Senior management has tasked Program Officers with implementation.

Savannah River Site (SRS): Third party financed contract (similar to ESPC) awarded 1995 to South Carolina Gas and Electric for operation of the SRS central boiler plant with option for future cogeneration facility at the site. Potential savings $200 million in 10 years. Part of DOE's Facility Energy Cost Savings initiative and Environmental Management's Challenge program. Potential for future avoided $80-90 million in budgeted infrastructure replacement if cogeneration phase proceeds with utility.

Sandia National Laboratory: Site has been approached by Public Service of New Mexico (utility) under Section 152 of EPACT for provision of "energy services" via a partnership between utility and energy service companies at the site. This will be an award under the GSA area-wide utility contract at the site. Also considering ESPC for replacement of the central steam distribution system with distributed modular boilers.

Question: The principle objective of the government-wide Federal Energy Management Program is to reduce energy consumption within the Federal government. How is the Federal Energy Management Program being managed by the DOE to meet this principal objective?

Answer: The Federal Energy Management Program leads the Federal government effort to achieve energy savings goals established by law and Executive Order through an integrated program focussed on its customer needs. In recognition of the importance of Federal energy management, the Department has relocated FEMP into the Office of the Assistant Secretary for Energy Efficiency and Renewable Energy. That increases its visibility and access to all energy efficiency and renewable energy programs.

Through the Interagency Energy Policy Committee, FEMP establishes overarching energy management policies and priorities in collaboration with the major Federal agencies. The implementation of these policies and priorities is coordinated through the Interagency Energy Management Task Force, which is composed of the top level energy managers for the major agencies. FEMP enables and facilitates the agencies in achieving increased energy efficiency through: developing guidance and conducting awareness and recognition activities; providing technical training, tools, assistance, and information; developing and implementing of innovative private sector (energy service company, utility) financing mechanisms; informing private sector entities about Federal business practices; encouraging Federal-private and Federal-state partnerships that expand resources available to agencies; and working to identify and overcome barriers to sound energy management practices. Regionally focused technical assistance is being provided through the six Energy Efficiency and Renewable Energy Regional Support Offices and states in order to ensure timely and appropriate assistance and the best possible use of local resources (state programs, knowledge of local building codes, etc.). FEMP receives and consolidates annual reports of agency energy costs, efficiency investments and accomplishments, and reports progress against established government-wide goals to Congress on an annual basis.

Current reporting indicates the effectiveness of this interagency energy management approach. In FY 1994, agencies reported a decrease of 11.2% in energy use per gross square foot of building space, which exceeded the 1995 goal of 10% reduction from a 1985 baseline. Energy costs (1994 constant dollars) in FY 1994 were reduced by $1.5 billion from FY 1985 levels, with cumulative cost savings of $9.8 billion over the period.

Question: An objective of the Federal Energy Management Program is deployment of energy efficiency technologies in Federal buildings. How is the DOE's Federal Energy Management Program being managed to meet the specific objective of deployment of commercially available energy efficiency technologies?

Answer: The Federal Energy Management Program provides Federal agencies with a coordinated approach to help bring to market new technologies that are commercially available but not yet in wide use in Federal facilities. FEMP brings together industry and Federal procurement officials to share their views on innovative solutions. This knowledge will be shared with other agencies through procurement practices, a series of fact sheets, and demonstrations.

FEMP is working with industry and Federal Procurement officials to determine which products and technologies would have the greatest potential for market entry through Federal buying practices. We want to send a clear signal to industry that the Federal government is a receptive market for products in the upper 25% of the market in energy efficiency.

The Federal Energy Management Program with the cosponsorship of the Council on Environmental Quality and the Office of Management and Budget initiated the Energy Efficiency and Resource Conservation Challenge. This Federal Procurement Challenge is a voluntary, government-wide commitment that uses the buying power of the Federal government to support and expand markets for today's best-practice energy-efficient, renewable, and water conserving products, create new entry markets for advanced, energy-saving technologies and products, lower the costs of efficient products for all consumers by providing a large, reliable market, reduce operating costs for Federal agencies, saving taxpayers' money, reduce Federal energy use and greenhouse gas emissions, and provide a model for other levels of government, corporate, and institutional purchasers. FEMP provides Challenge participants with a variety of tools and technical support to assist them in achieving Challenge goals. FEMP publishes *Product Recommendations* which identify energy efficiency criteria for products that meet the "best practice" as defined by EPACT and Executive Order 12902. These *Recommendations* are available for a wide array of products in an easy-to-use format for Federal procurement officials and product specifications.

In addition, the New Technology Demonstration Program, established in 1990, works to reduce Federal sector energy costs and improve overall energy efficiency, introducing new energy-efficient technologies to the Federal sector more quickly, thereby narrowing the gap between private-sector and Federal deployment rates of new technologies; by creating jobs in the manufacturing sector by spurring the use of new, energy-efficient, and environmentally beneficial technologies manufactured in the United States; and by helping Federal agencies implement pollution prevention strategies and reduce operations and maintenance costs. Because it takes over a year before results of New Technology Demonstrations are available and shared with Federal energy managers, FEMP launched a publication called Federal Technology Alerts. Federal Technology Alerts complement technology demonstrations, inform Federal energy and facility managers of technologies in the private and Federal sectors currently in use, and provide quick and cost-effective data for procurement decisions. Alerts typically include a description of the candidate technology; the results of its screening tests; a description of its performance, applications and field experience to date; a list of potential suppliers; and important contact information.

Question: Do you consider the commercialization of energy technologies to be an objective of the DOE's Federal Energy Management Program? Why?

Answer: No, and yes. The primary answer is no, as the FEMP mission is focussed on achieving energy efficiency in Federal facilities, and this translates into making sound investments in reliable, efficient technologies proven to save energy and money. In other words, technologies emerging from research and development, and as yet untested or proven in commercial application, are probably not good candidates for widespread use in Federal facilities. However, FEMP does see a limited commercialization role when a new technology has been proven in private sector commercial application, although perhaps at low volume, but has not been widely adopted in the Federal sector. FEMP tries to overcome information and unwarranted risk aversion barriers that might be preventing Federal acceptance of these technologies. This limited role may include cost-shared demonstration at a Federal site, inclusion in the Federal supply schedule, information dissemination in a Federal Technology Alert, inclusion of generic information in training courses, etc. As the single largest energy consumer, saver, and purchaser of energy consuming equipment in the Nation, Federal volume purchases of new, proven, highly efficient products and equipment can help drive down unit costs, create manufacturing and service employment, benefit the private consumer with lower prices, and allow American firms to be more cost competitive in world markets.

Both the Energy Policy Act of 1992 and Executive Order 12902 provide direction to FEMP to address the market impact of its purchases. A report responding to Section 165 is complete and is being circulated for review.

Question: Section 548 of the National Energy Conservation Policy Act requires each agency to furnish the Secretary of Energy with a description of the activities being carried out by each agency to reduce energy costs and energy consumption. Is the DOE receiving these annual reports?

Answer: Yes, all Federal agencies are required to report under Section 548 of the National

Energy Conservation Policy Act and submit information to the Department of Energy on an annual basis. The Office of Federal Energy Management Programs under the Assistant Secretary for Energy Efficiency and Renewable Energy within the Department of Energy has the responsibility for collecting information from Federal agencies on their efforts to reduce energy consumption within their facilities, vehicle fleets and operations. Information, both descriptive and quantitative from the previous fiscal year, is received from the agencies on an annual basis. It is aggregated at the agency level with no site specific detail, except as it might be included in anecdotal reports. This information serves as the basis for the Annual Report to Congress on Federal Government Energy Management and Conservation Programs. This report is prepared by the Office of Federal Energy Management Programs and contains an overview of the Federal energy management activities as a whole, energy management in buildings and facilities, energy intensive operations in Federal facilities, and energy management in vehicles and equipment. Also included in the report are brief descriptions of individual agency activities, on an aggregate basis, in energy management and conservation areas for that fiscal year. Progress is tracked against a 1985 baseline and information in the report is shown from that date to the latest reporting year. The information is provided in the report in various graphs, tables and charts as well as narrative descriptions. As specific agencies face downsized staff capabilities, they are delaying submittal and some are warning us that they may not have the capability for all their sites to report on their progress in the future.

TUESDAY, APRIL 16, 1996.

DEPARTMENT OF ENERGY

FOSSIL ENERGY

WITNESSES

PATRICIA FRY GODLEY, ASSISTANT SECRETARY FOR FOSSIL ENERGY, DEPARTMENT OF ENERGY

ROBERT S. KRIPOWICZ, PRINCIPAL DEPUTY ASSISTANT SECRETARY FOR FOSSIL ENERGY

GEORGE RUDINS, DEPUTY ASSISTANT SECRETARY FOR COAL TECHNOLOGY

MARVIN SINGER, DEPUTY ASSISTANT SECRETARY FOR ADVANCED RESEARCH AND SPECIAL TECHNOLOGIES

SANDRA L. WAISLEY, ACTING DEPUTY ASSISTANT SECRETARY FOR GAS AND PETROLEUM TECHNOLOGIES

CAPTAIN ERNEST HUNTER, DEPUTY ASSISTANT SECRETARY FOR NAVAL PETROLEUM AND OIL SHALE RESERVES

RICHARD FURGIA, DEPUTY ASSISTANT SECRETARY FOR STRATEGIC PETROLEUM RESERVES

CHARLES ROY, FINANCIAL SYSTEMS OFFICER

Mr. REGULA [presiding]. I call the committee to order, and today we have the Fossil Energy R&D program.

Ms. Godley, I am happy to welcome you. Your statement will be made part of the record, and you can summarize as you choose.

OPENING REMARKS

Ms. GODLEY. Thank you, Mr. Chairman, and it is a great pleasure for me to be before you again. The budget we are presenting to you today satisfies the commitment that we made to the President and that we made to this committee last year.

Mr. REGULA. Let me just say that I thought you did a pretty good job in giving us a responsible budget that recognizes the constraints.

Ms. GODLEY. Thank you. It's a commitment that we share, I think, with this committee as well as with the Administration, to certainly take our share of the pain that is required to reduce our Federal budget deficit; and to reinvent government by privatizing Elk Hills and offering that commercial oil for sale in the private sector, and to privatize the National Institute for Petroleum and Energy Research. The budget meets the national goals that we have discussed on several occasions, which we both share, allowing this country to continue using its true energy strengths.

On the easel that I have brought with us today at the end of the table, Mr. Chairman, we've enlarged the chart that's on the first page of our written testimony. I've blown this up to poster size because it's important. I think that we don't lose sight of the three major messages that it conveys.

First, fossil fuels dominate today's energy portfolio in this country. Eighty-five percent of our energy consumption comes from coal, oil and natural gas. Our economy, quite simply, would not be the strongest in the world if it weren't for these fuels.

Second, energy demand in this country is going to continue to grow. Our Energy Information Administration predicts that overall energy consumption will increase 19 percent over the next two decades. By 2015, the pie on the top right will be 19 percent larger than its counterpart on the left.

Third, and perhaps most important, the contribution of fossil fuels to our energy mix will not decline when this increase occurs. In fact, the role of these fuels in our economy will continue to grow. The EIA projects that by the year 2015, 88 percent of our energy will come from fossil fuels.

In two key sectors of our energy economy, electric power generation and transportation, fossil fuels will remain dominant. In the power industry alone, EIA forecasts a 30 percent growth in electricity generation and the fossil energy share of that energy sector will grow at even a faster rate. That growth is largely dictated by the likely phase out of nuclear power plants whose licenses expire during that time period. In the transportation sector, we are a nation that is today almost wholly dependent on fossil fuels. Over the next 20 years, that fact will remain virtually unchanged.

So the task in front of us today and in front of the Nation, as we look to its future economic growth, is to determine how we're going to accommodate the growing contribution of fossil fuels that will occur while protecting our environment and minimizing the security threat to the U.S. that comes from relying on some supplies of these fuels that are beyond our control.

Advanced technology is essential. It is a requirement in our ability to meet these goals. There is a clear and necessary Federal role in achieving the national objectives of affordable, secure energy and a safe environment. The importance of the Federal role is not declining.

As I've described in more detail, in my opening statement—the electric power industry is confronted with uncertainties, the magnitude of which that industry sector has never before experienced. As a result, it's becoming ultra-cautious, cutting back on its costs and looking for every competitive edge that avoids undue speculation.

This is a situation that creates severe disincentives for private sector R&D. As you know, membership in the Electric Power Research Institute is dropping. R&D investments across the board in the private sector are declining. Anything that doesn't have a direct——

Mr. REGULA. Is this the threat of deregulation that's contributing to the problems that you're outlining?

Ms. GODLEY. Yes, deregulation and the increased competition that's being foreseen in that industry. Companies are as wanting to cut their risks and be able to face competition more strongly, cutting back, of course, first and foremost in the area of R&D.

We've been seeing the same thing happening in the natural gas industry. As competition has increased in that industry and reduced profit margins, the Gas Research Institute, for example, which is the research arm of the industry—representing 337 members of the gas industry—has cut back its research program by 20 percent this year stating that its funding base has continued to erode. So we're seeing the same impact of increased competition driving prices down in both the electric power sector as well as in the gas sector.

Mr. REGULA. Is this competition horizontal? In other words, is it small electric generating versus the large and small distributors of natural gas versus the large? Or is the competition coming from other forms of energy?

Ms. GODLEY. It's coming within each sector.

In the oil industry, too, the migration of large oil companies, major companies, overseas to more lucrative prospects continues. U.S. wells meanwhile, especially in the lower 48, continue to shut down, prematurely in some cases, causing permanent abandonment of some of our fields. Our National Petroleum Council study on the oil and gas industry's R&D needs has concluded that low oil prices and the pressure on companies to cut costs have resulted in R&D dollars being diverted to short-term and technical service type of activities, not the long-range or high-risk R&D that can truly maximize the productivity of our domestic oil supplies. In fact, private sector spending on energy R&D has dropped by nearly 30 percent since 1982.

Meanwhile, global market opportunities for advanced fossil fuel technologies are greater than ever before. The world is going to require huge new supplies of energy, particularly in the developing countries. There is no dispute that the dominant source of this energy will continue to be fossil fuels worldwide. There is also no dispute that market opportunities will be captured by the nations that make the necessary investments today to develop the best, most affordable technologies.

Our competitors know exactly what these market opportunities are, and they also know the advantages that they can give their industries by creating government-industry partnerships along the very models that you have helped develop in the past in partnership with the Department of Energy.

Japan now spends as much as we do in the United States, dollar for dollar, on advanced coal-combustion technology because it knows that the better coal-burning equipment will be what sells in the world market in the coming years. The Japanese reportedly also spend three times more than we do on fuel cell research because they know that if their R&D is successful, they will have a product that will sell in the global market place of the 21st century. That's why they are also subsidizing their advanced gas turbine industry. Japan, Germany, and other nations in Europe, are all looking toward these huge new markets and putting their best efforts behind capturing their share of them and ours.

Speaking of environmental protection, more than 92 percent of total global man-made carbon emissions are released from outside the United States, not inside. The higher efficiency technologies under our Fiscal Year 1997 R&D program will lower CO_2 emissions by more than 40 percent compared to existing options while reducing energy costs, providing exportable technologies with the realistic opportunity to sharply reduce the global growth in greenhouse gas emissions.

Mr. REGULA. Do you monitor those?

Ms. GODLEY. The energy——

Mr. REGULA. The impact of emissions outside of the United States on the atmosphere in the United States?

Ms. GODLEY. I don't know if EIA tracks those as part of its energy information monitoring system, but there are organizations world wide that track those. It's included in our policy analyses in the Department.

The budget that we are presenting to you today meets the bi-partisan goal of reductions in Federal spending. There are 12 major categories of funding in our R&D program. We are proposing less money in 11 of them. The one that does go up is environmental restoration, which is the cost of cleaning up some of the sites that are owned and are operated by the Office of Fossil Energy. We have cut administrative overhead costs by nearly 22 percent since 1995. We are creating a more streamlined, less costly management structure both at headquarters and in the field. Overall in our R&D program, our funding level declines 17 percent in Fiscal Year 1997. Or, if you don't count the mining R&D portion that was added on after our Fiscal Year 1995 budget, the decline is about 10.5 percent over 1996—22 percent down over 1995, 10.5 percent down over 1996.

But at the same time, and this is so important, our budget does not abandon the partnerships and our contracts between government and industry that have proven productive in the past. These contracts and partnerships offer our best competitive hope for the future.

We've outlined, beginning on page 3 of the formal statement, some material achievements that have resulted from our government-industry partnerships. Our track record, Mr. Chairman, is a good one, and we, and this committee, should take pride in that track record.

Turning briefly to the Strategic Petroleum Reserve, we're asking for new budget authority because we no longer have the petroleum account to use as an offset to fund our ongoing operations. If you look at the actual funding levels for facilities and management at SPR, we're offering a 23 percent reduction. We're exploring other opportunities to offset operating costs at SPR, including commercialization of some of our infrastructure as well as leasing available space or capacity in the SPR facilities.

In the Naval Petroleum Reserves, Fiscal Year 1997 is likely to be our last full year for the Elk Hills operations, and we're holding the budget at a minimal level to operate and maintain the value of the Elk Hills field while we prepare to offer the property for sale to the private sector.

Let me conclude by saying we know that urgently and personally, that the Congress and the American people demand that this office produce real, measurable benefits from our investments of their dollars. Throughout this testimony we have tried to include specific performance measures that we expect to achieve through the investment of the dollars we are requesting. We have described the magnitude of the returns that are possible if we maintain support for these efforts, billions of dollars of savings and the cost of environmental compliance; savings that keep energy costs affordable in this country; lower cost electricity that translates directly into lower electric bills, and more competitive U.S. products; greater production from our oil and gas fields, meaning that dollars stay in this country rather than flowing overseas; a return to the taxpayer of the full value of a Federal asset like Elk Hills, and, finally, the benefits of adequate security in the form of a fully capable Strategic Petroleum Reserve. These are all important Federal objectives, and these are the returns that you, the Congress, and the American people expect from this budget, Mr. Chairman, and they are returns that we can deliver.

And of course, I'll be pleased to answer any of your questions or the questions of the committee.

[The statement of Ms. Godley follows:]

DEPARTMENT OF ENERGY - ASSISTANT SECRETARY FOR FOSSIL ENERGY
APRIL 16, 1996

Budget Authority - $ in Millions	**FY 1996 Conference**	**FY 1997 Request**	**Percent Change**
Fossil Energy Research and Development	$421.50*	$348.51	-17%
Clean Coal Technology	150.00	- 500.00	-433%
Strategic Petroleum Reserve	0	221.30	---
Naval Petroleum and Oil Shale Reserves	148.79	149.50	+1%
Total - Fossil Energy	$720.29	$219.31	-70%

*Includes $40 million in Mining R&D transferred from the Department of the Interior

MEETING OUR COMMITMENT TO RESULTS

- For the 21st century electric power industry, Government-industry partnerships can produce technologies that cut environmental compliance costs by over $7 billion a year, reduce annual electricity costs by $8-13 billion, and create U.S. and global market opportunities for U.S. technology of at least $6-10 billion a year;

- We can help U.S. producers develop the tools to increase oil production by 1 million barrels per day and natural gas production by 2 trillion cubic feet per year beginning in the 2010-2015 timeframe — generating more than $11 billion a year in domestic oil and gas sales.

MEETING OUR COMMITMENT TO FISCAL STEWARDSHIP

- Allocating reduced resources on the basis of:

  - *Appropriate Federal Role* - assuring that regulatory compliance does not choke our economy; preparing for future environmental challenges, and protecting U.S. security.

  - *Leveraging Government Funds* - requiring more cost-sharing as new technologies mature.

  - *Investing in "Leap Frog" Technology* - lowering R&D costs by applying innovations in computer technology, genetic engineering, and other "non-traditional" disciplines.

  - *Managing Government Funds Better* - reducing R&D management costs by 22% from FY 1995, streamlining field structure, eliminating smaller offices, privatizing our oil research laboratory and potentially the Elk Hills oil field, and reducing Federal and contractor staff.

THE FY 1997 PROGRAM

- In R&D, focusing on innovations for electric power generation and lower cost natural gas and oil production and environmental compliance, particularly in areas where U.S. private sector R&D is being severely cut back as domestic energy markets restructure;

- In Clean Coal Technology Program, maintaining commitments to ongoing projects but recognizing that some may be restructured or discontinued;

- In the Strategic Petroleum Reserve Program, continuing actions to restore full drawdown readiness by 1998 and extend usefulness of Reserve through at least 2025; and

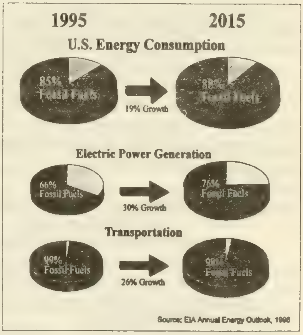
- In the Naval Petroleum and Oil Shale Reserves Program, maintaining a minimum stewardship effort while preparations are underway for potential divestiture of the Elk Hills field.

Statement of
Patricia Fry Godley
Assistant Secretary for Fossil Energy
U.S. Department of Energy
before the
Subcommittee on the Interior and Related Agencies
Committee on Appropriations
U.S. House of Representatives

The FY 1997 Fossil Energy Budget
MEETING OUR COMMITMENTS

Our FY 1997 Fossil Energy budget is based on the necessity of fossil fuels to our economy and economies of virtually every country around the globe. Today 85% of our domestic energy consumption is supplied by fossil fuels; by 2015, the contribution of fossil fuels will grow to 88%. Every credible energy expert believes that the foreseeable national and global energy future, like the present, will be shaped predominantly by fossil energy.

Our vision is that the benefits of fossil energy use – affordable prices, a stronger economy, greater employment, and a contribution toward improved global prosperity – can be realized at the same time we dramatically improve our environment. Moreover, we believe that the Federal Government has a major role – indeed a responsibility – in making that vision a reality.



Source: EIA Annual Energy Outlook, 1996

As energy consumption grows, fossil fuels will remain the Nation's energy mainstays.

At the same time, we remain cognizant of our commitments to fiscal stewardship. Our FY 1997 budget contains sharp reductions in the Clean Coal Technology Program, which we believe can be achieved without compromising our cost-sharing obligations to our private sector partners. It also includes a reduction in our Research and Development Program, reflecting the completion of some programs, fewer research contractors in others, and overall management savings achieved by restructuring the Office of Fossil Energy organization. It maintains a minimum level of activity at the Naval Petroleum and Oil Shale Reserves while privatization initiatives are underway. Only in the Strategic Petroleum Reserve program, where past balances from other offsetting accounts are no longer available, does our budget proposal request additional funding to maintain critical operations.

In short, our FY 1997 budget reflects the Administration's continued commitment to ensuring the full benefits of fossil fuels – through R&D, completion of the Clean Coal Technology Program, a fully capable Strategic Petroleum Reserve, and continued stewardship of the taxpayers' interests in the Naval Petroleum and Oil Shale Reserves – while also reducing the Federal budget.

OUR COMMITMENT TO RESULTS

The U.S. Federal investment in Fossil Energy R&D was over $400 million last year, it will be about $380 million this year, and the proposal for FY 1997 is about $348 million. Another $200 million to $250 million is spent annually on maintaining the Strategic Petroleum Reserve. For that kind of money, the taxpayer has a right to expect results. Our program will deliver them.

- In the 2000-2010 timeframe, advanced technologies emerging from our program will permit U.S. industry to reduce emissions of nitrogen oxides and air toxics from existing power plants by 70-90% and reduce the cost of meeting existing and future regulations by over $7 billion per year.

- Advanced power systems, dominated initially by natural gas technologies and later including new generations of coal systems, will not only be cleaner and more efficient than current systems, they will produce lower-cost electricity. This combination of improved environmental performance and greater affordability will be critical if U.S. companies are to compete – and win – in the domestic market and a burgeoning global market. Opportunities for increased sales of U.S.-technology could amount to $6-10 billion a year from 2001 to 2030. If we do not capture these market opportunities, foreign competitors and foreign technologies will.

- The combination of reduced environmental compliance costs and the lower costs of new electric power supplies can have a dramatic impact on a domestic economy that already spends $200 billion a year for electricity. Lower cost innovations in the power industry will certainly evolve more slowly and, particularly in the case of environmental compliance equipment, may not evolve at all without Federal R&D. Yet by using technologies from our program, U.S. industry could reduce annual electricity costs by $8-13 billion beginning in the 2001-2010 timeframe.

- By assisting the domestic industry develop more effective and lower cost technologies to find and recover U.S. oil and natural gas, we can reduce the decline in domestic oil production by 1 million barrels per day and increase U.S. natural gas production by 2 trillion cubic feet per year beginning in the 2010-2015 timeframe. This increased U.S. production will directly benefit our economy by generating more than $11 billion a year in domestic oil and gas sales – dollars that will stay in this country rather than flowing to foreign suppliers.

- Technologies emerging from the Federal R&D program provide U.S. policy makers with a more affordable alternative to future "command-and-control" environmental regulations. Particularly in regard to emissions of greeenhouse gases and air toxics, our programs could potentially save the U.S. economy billions of dollars in costly new regulations.

- While we work toward a more efficient, affordable energy future, the U.S. taxpayer expects Government to ensure the greatest possible domestic security today. Our 20-year investment in the Strategic Petroleum Reserve has created the world's largest emergency oil stockpile. In FY 1997-2000, our continued investments in the Reserve will ensure that it remains fully capable of responding to possible supply interruption through at least the year 2025.

While ambitious, our goals are achieveable because they build on a solid technological foundation – a foundation that exists because the U.S. has invested in clean, secure fossil energy technologies. For example, because of prior support for Federal fossil fuel research:

- In the early 1980s, our best studies showed that the most we could hope to achieve in terms of **coal-to-electricity efficiencies** was 38% – a small increase over the power industry's average of about 33-34%. Today, technologies demonstrated in our program are already operating at efficiencies of 42-43%. Our goal now is to push for efficiencies of 50-60% while lowering electricity costs. An important added benefit is that such systems emit much less CO_2 for each watt of electricity generated.

- In the early 1980s, oil and gas producers were stymied by continual failures of **diamond cutting drill bits**. DOE R&D solved the durability problem, and today, longer-lasting polycrystalline diamond drill bits save as much as $1 million per well. Our goal now is to build industry's confidence in a new array of 21st century drilling and production technologies, such as air drilling and carbon dioxide-sand fracturing. Reducing drilling costs makes it practical to produce more oil and gas from U.S. reserves.

- When the Clean Air Act Amendments were passed in 1990, industry faced the prospects of huge costs for **controlling nitrogen oxides** (NOx). Today, because of successful demonstrations in the Clean Coal Technology Program, NOx reduction technologies perform far better than previous technologies, yet are among the lowest cost options available. One fourth of the coal-fired capacity in the U.S. now employs these technologies.

- Because of our investment in clean coal technologies, we have inaugurated a new era of **clean electric power generation from coal.** The pioneering Wabash River Coal Gasification Plant in Indiana, dedicated on November 8, 1995, is heralding an entirely new way to generate electricity from coal with sharply reduced environmental emissions and increased efficiency. In FY 1997, the Tampa (FL) and Sierra Pacific (NV) projects will add to U.S. leadership in gasification-based power technology.

- 10 DOE cost-shared oil recovery projects now have made available at least 40 million barrels of **additional crude oil** that otherwise would have been left in the ground. Moreover, these projects have encouraged additional privately-sponsored field operations, producing millions of barrels of additional oil from U.S. fields and hundreds of millions of dollars in additional royalty revenue and other economic benefits.

- A DOE-cosponsored **horizontal test well** in Michigan is producing 100 barrels of crude oil per day — easily surpassing the 5-barrel per day output of the best conventional well in the field. It could rejuvenate an oil-producing region that was on the verge of being abandoned.

- A new array of **"high-tech" oil and gas exploration tools** that can probe for hydrocarbons faster, deeper and with unprecedented accuracy is now being made available to industry. Ranging from 4-dimensional seismic analysis (where time is incorporated into the equations) to rugged seismic sources that can be lowered deep into boreholes, to a novel device that can detect hydrocarbons through the metal casing of older wells, these new technologies offer the prospects of discovering oil and natural gas deposits that have been missed by conventional methods.

- A sophisticated methodology that allows State regulators to validate **"area of review" variance requests** for oil and gas disposal and injection wells has saved East Texas producers more than $86 million in regulatory compliance costs.

- "Booked" natural gas reserves in Southwest Texas are being increased by nearly 4 trillion cubic feet due to DOE's support of a **"secondary gas recovery"** project that discovered large quantities of natural gas bypassed by standard field operations. Gross production revenues from these reserve additions alone could approach $1.4 billion.

- The first **"advanced generation" fuel cells** are on schedule to begin testing in commercial settings this spring and summer. Intended to feed critical operational data back into the R&D program to lower costs, these field units (in Santa Clara and San Diego, CA) will help keep the U.S. perhaps 2 to 3 years ahead of foreign technology competitors.

In the **Strategic Petroleum Reserve Program**, we have made substantial investments over the last three years to refurbish and modernize the infrastructure to store and deliver emergency crude oil to the Nation. As this testimony will describe, we are well on our way to restoring the full readiness of this important national asset. Our FY 1997 budget builds on these investments, ensuring that we maintain the economic protection of a viable, responsive Strategic Petroleum Reserve.

Within budget limitations, we have also made investments in the future profitability of the **Naval Petroleum and Oil Shale Reserves**. The cogeneration facility, for example, is saving the Federal Government more than $1 million a month in electricity costs and has made the Reserves a more attractive asset for divestiture.

OUR COMMITMENT TO FISCAL STEWARDSHIP

The American taxpayer also has the right to expect the Federal Government to spend dollars prudently. The Congress has been blunt and direct in demanding federal agencies provide more benefits and products for lower budgets. We hear you.

Last year our budget for fossil energy research and development was $417 million. This year's funding will be about $377 million (on a comparable basis, i.e., without counting mining R&D transfers and prior year offsets). For FY 1997, we are requesting $343 million, over 20% less than budgeted in FY 1995 (plus an additional $5 million for materials R&D transferred from the Bureau of Mines).

Our budget is smaller, but we are not abandoning our responsibility to help solve critical national energy problems. Our strategy for addressing these issues with reduced resources consists of four components:

1. Sharply defining the *appropriate role for the Federal Government* and eliminating all non-essential or inappropriate research.

2. *Leveraging taxpayer funds* to the greatest extent possible, forming public/private partnerships where the national objective is common with private sector objectives.

3. Investing in *cutting edge technology* where the potential exists to "leap frog" traditional evolutionary advances that are more appropriate for private sector investment.

4. Implementing *better Federal management practices.*

The Federal Role

Within the last year, the Administration and Congress have moved significantly toward consensus on the role of Government in the fossil fuel portion of our energy sector. The Administration has proposed and Congress has approved a plan to divest the Elk Hills Naval Petroleum Reserve in FY 1998, recognizing that operating a commercial oil and gas field is not an inherent government function.

Within our R&D program, we have resisted the impulse to merely defend the status quo. The FY 1997 budget does not contain projects where there is no longer strong justification for Federal involvement. We have given highest priority to projects whose payoffs don't occur until the next decade and beyond, much farther into the future than the timeframe of current private sector R&D.

The Federal Government has a unique role in assuring that regulatory requirements, for example in the area of environmental compliance, do not choke our economy. As the originator of many of these regulatory requirements, the Federal Government can, and should, assist industry in developing technologies that can meet the standards cost-effectively. The track record in this area is good.

At many new power plants, the cost of complying with sulfur dioxide (SO_2) regulations is now about half what it was a decade or so ago largely because of Government-industry R&D partnerships. Most new nitrogen oxide control (NOx) technologies now being installed on existing power plants are products of joint Federal/private efforts. Today because of DOE's R&D, we know much more about the nature and amount of potentially toxic air pollutants that are released from power plants, so that any future regulations, if necessary, can be based on sound science. We have developed environmental management systems that dramatically reduce the cost of preventing ground water pollution from oil and gas wells, and we are now working with State regulators to implement these better approaches to regulation. ·

The Federal Government also has a unique role in preparing this country for future environmental challenges. Today, for example, there is no strong economic incentive for the private sector to conduct research on reducing greenhouse gas emissions. Yet, one day such reductions may become an environmental imperative.

The world is using more fossil fuels, especially coal. In fact, more than 92% of total global manmade carbon emissions are released from outside the United States. Finding an affordable, technological way to cut greenhouse gas emissions may not only preclude the need for costly "command-and-control" regulations, it can create exportable technologies that sharply reduce the *global* growth in greenhouse gas emissions. The higher-efficiency technologies in our FY 1997 R&D program offer these technological alternatives; they lower CO_2 emissions by more than 40% compared to existing options while, at the same time, *reducing* energy costs.

The Federal Government also has a unique role in assuring the security of the United States. Increasingly, economic security – and perhaps eventually, even national security – is inextricably tied to energy security. The role of our Strategic Petroleum Reserve as both a deterrent and a defense to future oil embargoes is obvious. The Reserve, however, is a short-term response. Over the longer-term, our security may be increasingly linked to how well we can produce secure sources of fuels domestically. Indeed, the Energy Information Administration's current energy projections show an upturn in domestic oil production – but only if new technologies become available.

Likewise, advanced technology may one day allow us to use the *full range* of our domestic resources to produce critically needed liquid fuels. For example, while the payoffs of converting coal and natural gas to liquid fuels are too distant to encourage much private sector R&D, Federal R&D has made important advances that have likely shortened the timeframe for these options. It may be possible with advanced technology now at the laboratory and benchscale to produce liquid fuels from coal at the equivalent of $25 per barrel of oil by 2010. The Energy Information Administration projects that the price of oil should pass $25 per barrel in the year 2015. Therefore, if our long-range R&D is successful, we can provide policy makers with a new, domestically-secure option to ensure adequate energy to fuel our economy.

Leveraging Government Funds

The Clean Coal Technology Program and our Oil Recovery Field Demonstration Program are perhaps the best examples of government/private sector teaming and cost-sharing. In both, private sector funding accounts for about 60%. We have extended this cost-sharing principle to other

Fossil Energy research activities, particularly for those R&D efforts that are beginning to show commercial promise.

For example, as our advanced fuel cell and gas turbine research continues to progress into more mature stages of engineering development, the Federal funding share has declined and the private sector contribution has increased markedly. In these programs, by the time the final stage of R&D is reached, private cost-sharing will be 60-70% of the development costs. The same increases in private sector cost-sharing can also be found in several other parts of our R&D program.

As the private sector sharply cuts back its R&D investments, we have found that Federal cost-sharing is being viewed by industrial developers as increasingly important in preserving technological progress. In turn, we use cost-sharing as a clear gauge on whether the R&D we are pursuing continues to attract private sector support.

Investing in "Leap Frog" Technology

Our world is rapidly changing, and the rate of change is accelerating as technology advances. Emerging innovations in data and information technology (like computers and advanced communications), advanced materials (ceramics and composites), miniaturization, catalysts, and biotechnology can have dramatic effects on the future of energy technology.

Beginning in FY 1997, we will be carrying out a small effort to ensure that we are taking full advantage of research progress in areas that may not have been viewed in the past as traditional fossil fuel disciplines. We will ensure that researchers outside of our program are familiar with energy research needs which might benefit from these emerging technologies.

For example, we envision a future in which the cost of expensive demonstration plants can be dramatically mitigated by demonstrating small scale components and simulating the effect of scale-up and integration with advanced computer programs. There is also the long-range potential of applying genetic engineering and biological processes to solving difficult environmental problems at much lower costs than traditional chemical approaches.

In other words, we are positioning our program for the post-2000 era in which creativity and imagination can lead to significant cost- and time-savings in developing new energy products.

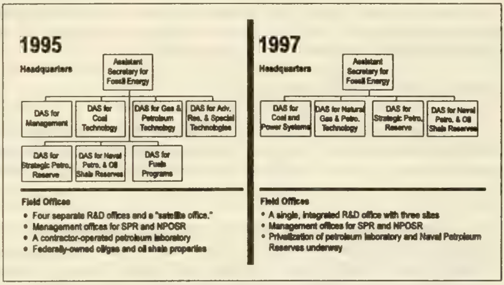
Managing Government Funds Better

Both Congress and the Administration agree on the need to improve management efficiency throughout Government, permitting more funding to go to vital programs and less to administrative overhead.

Our FY 1997 budget reflects the first year of the substantial savings that were envisioned when the Department initiated its Strategic Alignment Initiative in 1994. Management costs in the

FY 1997 research and development program will be nearly 22% less than in FY 1995. We will save at least $125 million over the next five years by streamlining our headquarters organization and by consolidating management and administrative functions at our three R&D field centers. By the end of FY 1996, instead of three separate field offices each with their own administrative staff, we will have a single, integrated field office sharing administrative resources at three locations.

We have already eliminated two smaller field research offices (at Metairie, LA, and Laramie, WY). By the end of FY 1996, we will have three fewer Deputy Assistant Secretary offices at headquarters than we had in 1995. By the end of FY 1997, our Federal research and development staff (at both headquarters and in the consolidated field offices) will be over 150 positions less than in FY 1995, while our contractor workforce will be reduced by more than 300 positions. The Strategic Petroleum Reserve staff (both headquarters and in the field) will be 16 staff positions smaller in FY 1997 than in FY 1995.


1995
Headquarters
Assistant Secretary for Fossil Energy
DAS for Management
DAS for Coal Technology
DAS for Gas & Petroleum Technology
DAS for Adv. Res. & Special Technologies
DAS for Strategic Petro. Reserve
DAS for Naval Petro. & Oil Shale Reserves
DAS for Fuels Programs
Field Offices
• Four separate R&D offices and a "satellite office."
• Management offices for SPR and NPOSR
• A contractor-operated petroleum laboratory
• Federally-owned oil/gas and oil shale properties
1997
Headquarters
Assistant Secretary for Fossil Energy
DAS for Coal and Power Systems
DAS for Natural Gas & Petro. Technology
DAS for Strategic Petro. Reserve
DAS for Naval Petro. & Oil Shale Reserves
Field Offices
• A single, integrated R&D office with three sites
• Management offices for SPR and NPOSR
• Privatization of petroleum laboratory and Naval Petroleum Reserves underway

Our 1997 headquarters organization will have three fewer Deputy Assistant Secretaries and a significantly restructured field organization.

Our plans to privatize the National Institute for Petroleum and Energy Research in Bartlesville, OK, beginning this summer, are projected to save the Government $25-35 million. The sale of the Elk Hills Naval Petroleum Reserve (if an acceptable sales price can be obtained) could net the U.S. Treasury well over $1 billion over the next five years and allow further reductions in the size of the Fossil Energy workforce.

THE FY 1997 FOSSIL ENERGY R&D PROGRAM

Our proposal for Fossil Energy R&D funding in FY 1997 is predicated on:

- Ensuring that all projects reflect a correct perspective on the appropriate role of the Federal Government in energy R&D;
- Providing American taxpayers with real measureable results in terms of energy, environmental and economic benefits;
- Minimizing the cost of necessary research through careful planning and effective management.

The result is the following budget proposal:

FOSSIL ENERGY R&D (Budget Authority - $ in millions)	FY 1995	FY 1996 Conference	**FY 1997 Request**	Change from FY96
Coal Technology R&D	$130.18	$108.88	**$91.97**	-15%
Natural Gas R&D	109.47	112.19	**103.71**	-8%
Petroleum R&D	75.21	55.71	**52.54**	-6%
Advanced Crosscutting Research	14.28	12.38	**10.66**	-14%
Program Direction & Management	72.66	66.60	**57.16**	-14%
Plant & Capital Equipment	5.01	4.00	**3.30**	-18%
Environmental Restoration	15.30	14.92	**15.03**	+1%
Cooperative R&D	8.86	6.30	**4.00**	-36%
Fuels Programs (Regulatory)	3.00	2.69	**2.19**	-19%
Mining R&D (transfer from DOI)	0	40.00	**5.00**	NA (transfer)
DOE-Wide Working Capital Fund	4.27*	4.33*	**2.95**	-32%
Subtotal	$438.24	$428.00	**$348.51**	-19%
Prior Year Offsets	-16.87	-6.50	**0**	
Total - Fossil Energy R&D	$421.37	$421.50	**$348.51**	-17%

*Shown for comparability purposes

To improve our management and take advantage of program synergies, we have begun incorporating a "business line" approach. Rather than managing the Fossil Energy research program solely by fuel types (coal, oil, natural gas), we approach our strategic planning and implementation from the perspective of market sectors, e.g., electric power systems, natural gas and oil exploration and production, advanced clean fuels production, etc. This testimony is organized in this manner:

Advanced Electric Power Systems R&D - Keeping Innovation Alive as the U.S. Market Restructures

Our FY 1997 research program on advanced generations of high-efficiency power systems is funded from both the coal and natural gas budgets. The major elements are:

ADVANCED POWER SYSTEMS (Budget Authority - $ in millions)	FY 1995	FY 1996 Conference	**FY 1997 Request**	Change from FY96
Coal - Advanced Clean/Efficient Power Systems	$87.66	$80.28	**$66.81**	-17%
Natural Gas - Advanced Turbines	$36.98	$36.77	**$31.60**	-14%
Natural Gas - Fuel Cells	$46.96	$52.46	**$46.62**	-11%
Total - Advanced Power Systems	$172.60	$169.51	**$145.03**	-14%

This budget request has been shaped by two major challenges that confront the U.S.:

1. The risk that the United States will lose a substantial share of the global power technology market if it does not sustain the same type of government/industry R&D partnerships that our competitors are now creating;

2. The profound changes in the U.S. utility sector's approach to R&D which have sharply curtailed private funding and shifted the remaining dollars primarily to projects with almost immediate payoffs. A principle "victim" of private sector cutbacks has been long-term R&D for "public good" benefits such as lower cost environmental protection, even though there is strong public expectation that environmental quality must continue to improve even as our economy grows and energy consumption rises.

The Global Economic Challenge - Nowhere is global competition more intense than in the worldwide electric power market.

The world is increasingly turning to electricity to power economic growth. Outside the United States, the market for electric power systems could be as large as $1 trillion in 2015. A country that captures only 20% of this market would sell more than 400,000 megawatts of power generating capacity and bring in revenues of nearly $200 billion.

We can be such a country if we agressively pursue technology development in joint government-industry partnerships.

Other governments certainly recognize the potential. The governments of Japan and Germany, for example, have increased cooperative efforts with their private companies to develop technologies for global sale. Japan, in spite of a flat economy, has nearly tripled its funding over the past five years for advanced coal combustion technology – the technology most in demand in the world export market. Today, on a dollar-for-dollar basis, the Japanese government's investment in cleaner, more efficient coal-burning technology matches that of the United States. Japan reportedly spends nearly three times more on fuel cell research.

The Decline in U.S. Private Sector R&D - While other countries increase their energy R&D investments, public and private expenditures for energy R&D in the United States continue to decline.

In the U.S., the utility sector is struggling with the uncertainties of approaching widescale deregulation. While some States that are leading the restructuring are adopting policies to promote some categories of R&D, during this critical transition period Federal R&D support becomes even more important in sustaining the Nation's technological progress. Confronted by uncertainty, power companies have sharpened their focus to more immediate concerns, seeking a competitive edge primarily by cutting costs. R&D funding, especially for the longer term, has been severely reduced. Utility heavyweights, including all of the Florida utilities, have withdrawn from the Electric Power Research Institute (EPRI) as a result of competitive pressures to cut costs.

In the January/February 1996 issue of *EPRI Journal*, EPRI's Vice President Kurt Yeager writes "...as competition intensifies, strategic planning horizons are shrinking. For many utilities, it's a question of how an investment will pay off not three or five years down the road but over the next six months or year ...." [Emphasis added].

The private sector's focus on near-term competitive needs means that the Federal government is playing an increasingly important role in maintaining the Nation's R&D progress toward energy systems for the post-2000 timeframe. In today's R&D climate, beyond the year 2000 is "long term," and that is where our R&D program is targeted.

The FY 1997 Federal Program - Our request for advanced power systems R&D is $66.8 million in the Coal R&D budget and $78.2 million in the Natural Gas R&D budget. In both programs, our focus is on developing the technical foundation for concepts in the 2000-2010 timeframe for commercial readiness – well beyond the R&D horizon of today's private sector.

The **coal-related power systems funding** will support longer-range technologies with a goal of reducing emission levels to 1/10th of today's permissible limits, boosting efficiencies to levels beyond 50% (today's plants operate at 33-34% efficiency levels), and reducing CO_2 emissions by 40% or more — while at the same time, reducing the costs of generating electricity by 10-20%. Our request includes $57.0 million in funding for advanced low emission boiler concepts, new generations of pressurized fluidized bed combustion and integrated gasification combined cycle systems, and the innovative concept of an indirectly fired, combined cycle system. Another $9.8 million is requested for research on advanced environmental control systems that can reduce air toxics, fine particulates and other air emissions, as well as longer-term research on CO_2 control and disposal.

The **natural gas power systems funding** involves research on advanced gas turbines and fuel cells. In both, our target is to develop the first prototypes of market-ready advanced systems in time (by the year 2000) to meet the "window" for technology exports to underpowered regions of the world. Our advanced turbine program ($31.6 million) remains on pace to develop by the year

2000 an ultra-high efficiency (exceeding 60%) turbine that can give the U.S. a virtually insurmountable technical lead in the global market. Our fuel cell program in FY 1997 ($46.6 million) will continue the R&D push necessary to position U.S. industry to introduce advanced molten carbonate and solid oxide fuel cells into the multi-kilowatt onsite and low megawatt utility markets in the year 2000. Ultimately, in the post-2000 timeframe, our research program will result in both fuel cells and advanced turbines being adapted for coal as well as natural gas.

Advanced Clean Fuels Research - Providing a Long-Term Alternative to Imported Oil

Our request for $15.95 million for advanced coal-based clean fuels research keeps the option available to one day refine coal to a variety of liquid fuels and chemicals that might be needed as substitutes for petroleum-based products. This reduced funding will continue to keep our program progressing toward the goal of producing clean liquids from coal at a cost of $25 per barrel. Progress to date has developed liquefaction technology that has reduced the cost of producing clean coal liquids from $50 per barrel in 1980 to a projected commercial cost of about $32 per barrel today. In FY 1997, the liquefaction program will focus on advanced catalysts and innovative coal-waste and other co-processing concepts that are critical next steps in meeting our cost goals.

The coal preparation budget will continue to emphasize advanced methods for removing the impurities that can cause emissions of air toxics and other air pollutants. Advanced coal cleaning has the potential to provide the lowest cost means of reducing mercury emissions from power plants.

The funding levels for this program are:

ADV. CLEAN FUELS RESEARCH (Budget Authority - $ in millions)	FY 1995	FY 1996 Conference	**FY 1997 Request**	Change from FY96
Coal Preparation	$7.04	$4.66	**$5.10**	+9%
Direct Liquefaction	8.62	5.58	**5.86**	+5%
Indirect Liquefaction	12.20	5.84	**4.25**	-27%
Adv. Research & Environmental Tech.	3.90	3.55	**0.75**	-79%
Systems for Coproducts	0.90	0	**0**	
Total, Advanced Clean Fuels Research	$31.85	$19.63	**$15.95**	-19%

Advanced Research and Technology Development - Undergirding Tomorrow's Advances

This research provides the fundamental science and engineering basis for future fossil fuel concepts. In the FY 1997 budget we have organized this activity into two categories: (1) Coal-specific research and analysis, and (2) Fossil Energy-wide support. This reflects that some activities previously shown under the coal R&D budget actually benefit the natural gas and petroleum R&D programs as well. The funding levels for this program are:

ADV. RES. & TECH. DEVELOPMENT (Budget Authority - $ in millions)	FY 1995	FY 1996 Conference	**FY 1997 Request**	Change from FY96
Coal-Specific Research & Analysis				
- Coal Utilization Science	$3.04	$3.15	**$3.15**	--
- Coal Technology Export	0.82	0.82	**1.05**	+28%
- Bioprocessing of Coal	1.93	1.00	**1.00**	-
- University Coal Research	4.90	4.00	**4.00**	-
Fossil Energy-Wide Support				
- Materials and Components	8.57	6.93	**5.27**	-24%
- Environmental Activities	1.81	2.51	**2.24**	-11%
- Technical and Economic Analysis	0.69	0.96	**0.86**	-10%
- International Program Support	1.30	1.01	**1.16**	+15%
- Instrumentation and Diagnostics	0.96	0	**0**	-
- HBCU, Education and Training	0.94	0.97	**1.14**	+17%
Total, Adv. Research & Tech. Development	$24.96	$21.35	**$19.87**	-7%

Natural Gas and Petroleum Exploration & Production - Tapping the Full Potential of Secure Domestic Supplies

Today the United States is not able to tap the full potential of its domestic petroleum and natural gas resources. Continuing low world oil prices have imposed a severe disincentive on the private sector's development of advanced exploration and production technologies.

Even though we are endowed with huge quantities of unproduced petroleum, the profit margin to produce oil from much of our domestic resource base is extremely thin or, in some cases, virtually non-existent in today's economic environment. Thus, increasing amounts of oil are imported into the U.S. while domestic oil resources remain unproduced.

Likewise, trillions of cubic feet of natural gas remain locked in deposits that are too difficult or expensive to extract with today's technology. Lower cost, more effective technology could bring this gas onto the market, helping to further diversity our domestic energy mix. But low gas prices are discouraging private investment in the needed R&D.

The FY 1997 Fossil Energy budget is attempting to address this situation by developing technologies that lower the cost of finding and producing crude oil and natural gas in the United States. Our budget request includes:

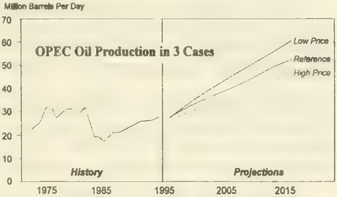
NATURAL GAS and PETROLEUM EXPLORATION & PRODUCTION (Budget Authority - $ in millions)	FY 1995	FY 1996 Conference	**FY 1997 Request**	Change from FY96
Natural Gas				
- Exploration & Production	$18.37	$14.16	**$15.00**	+6%
Petroleum				
- Recovery Field Demonstrations	28.29	11.08	**6.10**	-45%
- Exploration & Production Supporting Research	35.43	33.48	**34.02**	+2%
Total, Exploration & Production	$82.09	$58.72	**$55.12**	-6%

The Threat of Increasing Oil Imports - Low cost foreign oil continues to flow into the United States at all-time record rates. Immediately prior to the 1973 oil crisis, the U.S. was importing less than 27% of its crude oil. When the 1979 oil price shock hit, U.S. imports were less than 43% of the Nation's oil consumption. Today, oil imports account for 46% of our oil needs, and by 2010, could account for more than 60% of our supply.

In fact, just the increase in U.S. crude oil imports in the last 10 years (1985 to the present) – from 5.1 million barrels per day to nearly 9 million barrels per day – is itself greater than the total oil consumption of any other country in the world, except Japan and Russia.

Although non-OPEC nations did increase production by almost 15 percent from 1980 to 1990, they increased proven reserves by only 10 percent. On the other hand, while OPEC increased production by 20 percent in the 1980s, it increased its proven reserves by 75 percent. As a result, OPEC's reserves-to-production ratio doubled to 90 years while the remaining years of production for non-OPEC reserves have actually fallen, from 18 years to 17 years.

This situation raises the likelihood that the potentially unstable Persian Gulf could return to dominance in meeting the world's growing appetite for oil. With two-thirds of the world's oil reserves, the Persian Gulf is expected to supply more than 75% of the increase in global demand for oil over the next 15 years. By 2010, the Persian Gulf's share of the world export market could surpass its highest level to date - 67% - attained in 1974. If low oil prices persist, fully 75% of the world's petroleum trade could be supplied by the Persian Gulf by the end of the next decade.



EIA Annual Energy Outlook 1996

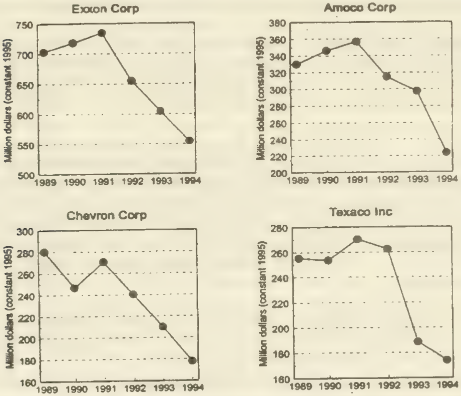
OPEC, with its vast store of readily accessible oil reserves, is likely to be the major supplier of the world's increasing demand for oil. EIA forecasts that by 2010, OPEC could be producing about twice the level it produced in 1990.

Decline in U.S. Oil Production Hastened by High Production Costs and Lack of Private Investment - Even as foreign oil imports rise, the U.S. continues to abandon domestic wells at an alarming rate. In the last 10 years, more than 173,000 U.S. oil wells have been abandoned. Oil production from stripper wells is now at its lowest level in nearly 50 years.

With low oil prices expected to persist, the marginal U.S. producer (now almost solely a small, independent company working on the economic edge) increasingly faces the likelihood of plugging and walking away from uneconomic wells, despite the fact that billions of barrels of producible oil still remain in the ground. By 2020, as much as 80% of the U.S.'s remaining oil resource could be abandoned unless better technologies become available.

Historically, independent producers (who drill 85% of U.S. wells) could look to the major oil companies for new technologies that could improve the prospects for keeping U.S. oil fields active. But that is no longer the case. The following shows R&D spending by four major oil producers. Although these charts include several categories of company-sponsored R&D – and it is difficult to separate funding for upstream and downstream oil R&D and other corporate R&D activities – the trends are unmistakeable:

Research Spending by Major Oil Companies



Source: Schonfeld and Associates 1995, 1994

In the natural gas industry, the 337-member Gas Research Institute (GRI) recently announced a 20% reduction in its 1996 research program, stating that its "funding base has continued to erode" because of increasing competitive pressures brought about by deregulation. The institute proposes to eliminate 1996 funding for 17 previously-approved projects. It has already announced staff cuts and predicts that more personnel and research cuts will occur in 1997.

Private sector oil and gas technology developers – like the industry itself – are in a state of transition brought on by the collapse of oil prices in the 1980s and the expectation of constrained oil and gas prices in the foreseeable future. While opinions differed on the impact of reductions in private sector R&D spending in a recent National Petroleum Council survey, the Council's consensus was that "besides the direct pressures on in-house developers created by oil prices and resulting requirements for cost reduction, there are other indirect pressures that have resulted in a greater proportion of *short-term and technical service-type activities*." [Emphasis added]

The Potential for Natural Gas - Research cutbacks are coming at a time when natural gas use is projected to grow significantly in the U.S. energy market. Traditionally its most important use has been in the residential sector (where it supplies nearly half of all energy consumption), but in the future, natural gas is projected to increase its contribution in other energy sectors, most notably in the electric power generation and transportation markets. In fact, the Energy Information Administration forecasts that domestic natural gas consumption will increase by one-third over the next 20 years. About half of this increase will be to fuel electric power plants.

For the full potential of domestic natural gas to be realized, consumers must be confident that long-term supplies are adequate and affordable. Particularly in the electric utility market, where decisions are based on 30 year-plus plant life expectancies, the long-term future of natural gas reserves must be assured. Technology will largely determine whether or not these assurances can be given.

For example, in February 1995, the U.S. Geological Survey doubled its estimates of the nation's onshore inferred natural gas reserves (from 114 trillion cubic feet in 1995 to 232 trillion cubic feet in 1996). The reason for this increase was largely attributed to the rates of technological progress applied to exploration, drilling, and production. In the future, a significantly greater share of U.S. natural gas production will have to come from frontier supply sources, e.g., dense formations in the West and deeper gas formations both on- and offshore. In these formations, gas production will be much more sensitive to the rate of technology improvement than in the past.

In other words, for U.S. consumers (especially utilities) to have sufficient confidence to make the 30-year or more investments in new gas applications (like turbine and fuel cell-based power plants) that can expand the use of natural gas in the United States, R&D investments must be made today to assure adequate gas supplies in the 2010-2050 timeframe. Privately-sponsored R&D is not focusing on this long-range time horizon.

The FY 1997 Federal Program - Our request for $55.12 million in advanced exploration and production technology ($15.00 million in the natural gas program; $40.12 million in the petroleum program) will continue our highly-leveraged program with U.S. industry to bring down the costs of production through implementation of innovations in exploration, drilling, and production technologies. Through a combination of improved technologies and lower regulatory compliance costs (see p. 18), our goals are to:

- assist domestic producers increase domestic oil production by nearly 1 million barrels per day by 2015 (equivalent to nearly 1 out of 6 barrels produced from U.S. fields in 2015);
- assist natural gas producers increase their production by nearly 2 trillion cubic feet per year (7% of expected demand) by 2010;
- enhance the value of Federal lands which account for 20% of the Nation's oil production and 35% of the Nation's natural gas production.

In the **natural gas exploration and production program**, our research will continue to concentrate on innovative technologies that can dramatically increase the speed and accuracy at which wells can be drilled, reduce damage to underground formations (thereby extending the life of production), and reduce the investment costs of drilling equipment. Given that U.S. industry is projected to spend nearly $14 billion by 2010 to drill new gas wells, even a small improvement in drilling costs can have enormous benefits. Slimhole drilling tools being developed in our partnership program with industry, for example, are projected to reduce drilling costs by 40%. Underbalanced drilling technology and advanced downhole telemetry systems also hold the potential for significantly lowering the costs of drilling new wells.

We will continue to study advanced techniques for producing natural gas from the low-permeability formations of the West (such as the Greater Green River and other priority basins in Wyoming, Utah and Colorado). These hard-to-produce reservoirs are critical to providing long-term confidence in natural gas supplies. Advanced research in fracture detection and mapping that is well beyond the timeframes of today's industry can boost production from these domestic resources for many decades into the 21st century. We have also included funding for our part of joint efforts with the U.S. Geological Survey to develop a better "engineering profile" of the national gas resource base, something that is beyond the scope of individual companies.

In the **oil exploration and production programs**, our focus will be on two major activities: 1) the joint government-industry, recovery field demonstration program; and 2) the longer-range, supporting research program.

In the recovery field demonstration program, in FY 1997 we intend to complete Federal funding for all of the "reservoir class" field projects and carry out a limited effort to assist companies develop better reservoir management techniques in economically-marginal fields and to help small operators find ways to keep marginal wells in production.

Our supporting research program looks well into the 21st century when tomorrow's domestic producers will need much better technologies to explore for remaining oil supplies, to characterize more difficult and complex U.S. reservoirs, and to drill for and extract oil supplies even more cost effectively. We will continue to study advanced concepts – such as cat-scanning and magnetic resonance imaging – that can image hydrocarbons and other fluids in reservoir rocks and lead to better production efficiencies. We will continue to work on innovations in longer-range production technology, such as advanced thermal flooding for heavy oil, microbial-biotechnology recovery, and new thermal and carbon dioxide flooding techniques for light oil fields.

Three-dimensional (3D) seismic depth imaging, in particular, can reveal untapped hydrocarbons. Bringing this advanced technique into greater use, however, demands extremely sophisticated technology and gigantic computing power. The know-how to make this possible exists in the United States; nuclear test computational expertise developed from our Cold War investments in our National Laboratories is directly applicable. For example, a joint project between Sandia National Laboratory and several computer companies has led to new computer code that cut computational time from days to hours. This unprecedented processing speed now makes it possible to search for oil and gas in regions that historically have been beyond the reach of conventional technology – for example, the potentially huge reservoirs that may lie beneath salt sheets in the Gulf of Mexico. We propose to continue the very successful national laboratory-industry partnership program, transferring our investments in national defense technologies to the production of domestic energy. In our FY 1997 partnership program, we propose to integrate high-performance computing technology into the ongoing national laboratory-industry activities.

Natural Gas and Petroleum Environmental Research - Lowering Compliance Costs Through More Reasonable Regulations

Improved technology is only one way to lower the costs of producing domestic oil and natural gas supplies. Equally beneficial may be reductions in environmental compliance costs. In 1984, the oil and natural gas industry spent $3.6 billion per year to comply with local, State and Federal environmental regulations. By 1993, compliance costs had risen to $10.6 billion per year. Over the next 5 years, new regulatory proposals could add another $14 billion per year. These added costs translate directly into lower domestic oil and gas production, especially from marginal properties.

The Nation, however, does not have to bear these huge economic burdens to have a clean, safe environment. Applying sound science, risk-based analysis, and credible methodologies can dramatically reduce compliance costs to industry without impairing public health and safety or endangering the environment. New, lower cost environmental compliance technologies can also reduce economic burdens and allow more dollars to be invested in actual oil and gas production.

The Federal Government has a unique and important role in developing mechanisms to streamline and improve existing regulations and laws as well as to ensure that future requirements are based on sound science. Our FY 1997 program places one of its highest priorities on showing

State, local and Federal regulatory authorities how to protect the environment and at the same time, reduce compliance costs on our domestic industry. This increased emphasis is the reason for the higher proposed budget levels for this program:

NATURAL GAS and PETROLEUM ENVIRONMENTAL RESEARCH (Budget Authority - $ in millions)	FY 1995	FY 1996 Conference	**FY 1997 Request**	Change from FY96
Natural Gas - Environmental Research/Regulatory Impact	$2.93	$2.95	**$4.65**	+58%
Oil Technology - Exploration & Production Environmental Research	4.69	5.46	**6.46**	+18%
Total, Gas & Oil Environmental Research	$7.62	$8.41	$11.11	+32%

In the **natural gas environmental research/regulatory impact** area, our efforts range from developing remote methods to detect natural gas leaks from pipelines to the pilot testing of more cost-effective techniques for treating and disposing of naturally-occurring radioactive material (NORM). The methane leak detection technology takes advantage of a government-developed innovation by Sandia National Laboratory for video imaging hydrocarbons. Its development will not only lower economic losses for the industry but also significantly cut atmospheric emissions of methane, a powerful greenhouse gas. Our research into the treatment and disposal of NORM will provide credible risk-based scientific information to State regulators (who are now developing requirements for NORM waste management), potentially lower the disposal cost of NORM waste from $1000 per barrel (of waste) to $300 per barrel, and demonstrate NORM disposal techniques that do not require transporting the waste off the property.

In the **oil technology environmental research program**, our goal is to lower the costs of complying with regulations for disposing of water and sand produced from oil/gas well operations, and to develop ways to better assess and mitigate the risks to groundwater from oil and gas operations. We also propose to expand our assistance to States in applying a nationally-developed methodology for assessing the risks of injection wells, ensuring that States have adequate tools to streamline and improve regulations. A national network of 25 States now exists to implement the DOE-developed, risk-based management system.

A key element in both the natural gas and oil environmental research area is an active outreach program with States, local agencies and producers. Although not a high-cost budget item, DOE's efforts to facilitate dialogue among producers and regulators has been highly productive in reducing institutional barriers and preserving U.S. oil and gas production while enhancing environmental protection.

We estimate that the oil and gas environmental research program, if funding can be sustained at the FY 1997 levels, can increase U.S. oil production, for example, by more than 200,000 barrels per day and natural gas production by 0.5 trillion cubic feet per year in 2015 through a combination of better risk assessment, regulatory streamlining, and lower cost compliance technology.

Downstream Research - Ensuring that Domestic Natural Gas and Oil Reaches Customers Efficiently and Affordably

While improved exploration and production technologies and cost-effective environmental compliance are crucial if the U.S. is to tap the full potential of its oil and natural gas resources, "downstream R&D" also offers opportunities for improvements that can increase the supply of domestically-produced energy reaching U.S. consumers. The major elements of this budget are:

DOWNSTREAM RESEARCH (Budget Authority - $ in millions)	FY 1995	FY 1996 Conference	FY 1997 Request	Change from FY96
Natural Gas				
- Gas Storage R&D	$1.05	$1.07	**$1.00**	-7%
- Utilization (Low-Quality Gas Upgrading and Gas-to-Liquids R&D)	3.19	4.77	**4.84**	+1%
Oil Technology				
- Processing Research & Downstream Operations	$6.80	$5.70	**$5.96**	+5%
Total, Downstream Research	$11.04	$11.54	**$11.80**	+2%

Gas storage is the critical link between producers and consumers. It plays an increasingly significant role in the growth of the North American natural gas market, especially in the post-FERC Order 636 deregulation environment. Since 1990 use of gas storage to meet peak winter heating demands has increased 20%. Particularly for "nonfirm customers" – those who risk being cut off in times of peak gas demand – the speed and efficiency with which gas companies can extract natural gas from storage is extremely important. The responsiveness of storage fields to peak demands is both weather- and price-driven; however, improved technology plays a critical role in assuring that these fields can deliver when called upon. DOE's efforts in this area primarily support "cooperative research and development agreements" with industy to improve the design, development and flexibility in gas storage field operations.

The **natural gas utilization program** provides two approaches for ensuring that the Nation's gas supply is used to its full potential. More than 1/3rd of the natural gas in the United States is below the standards demanded for pipeline transport. The goal of DOE's low-quality gas upgrading program is to develop affordable technology that industry can use to can add as much as 750 billion cubic feet per year to the Nation's gas reserves by 2010. The gas-to-liquids program is targeted at producible gas formations that are too remote from pipelines to make production economical (such as Alaskan North Slope and deep offshore Gulf of Mexico gas). Research into lower-cost technologies for converting this gas into clean liquid transportation fuels could potentially displace as much as 500,000 barrels per day of imported oil by 2010. Early testing shows the potential for producing gas-derived fuels competitive costs and with an environmental quality superior to current least-polluting, oil-derived liquid transportation fuels.

Oil processing and downstream operations research is targeted directly at slowing the trend for crude oil to be processed overseas before being shipped to the U.S. Research that can assist refineries in complying with environmental requirements as well as reducing the formation of pollutants can have dramatic payoffs. America's economic growth will demand about 1 million barrels more refined product by the year 2000. At the same time, the domestic refining industry is being required to spend billions of dollars to comply with new environmental regulations. By developing better environmental data and technologies, we can assist industry in achieving superior environmental compliance while saving consumers millions of dollars.

In addition, as U.S. crude oils become heavier and demand increases for lighter products (reformulated gasoline, oxygenated fuels, etc.), research that can increase the processing efficiencies of refineries can provide major, national dividends in terms of greater amounts of high-value, more affordable petroleum products.

Fossil Energy Management and Other Funding Requirements

In addition to the technology programs described above, the Fossil Energy R&D budget also contains funding for administrative and other expenses. As the following chart shows, these funding requirements have been significantly reduced in line with management streamlining, downsizing, and privatization within the Fossil Energy organization:

MANAGEMENT AND OTHER FUNDING REQUIREMENTS (Budget Authority - $ in millions)	FY 1995	FY 1996 Conference	FY 1997 Request	Change from FY96
Program Direction & Mgm't Support	$72.66	$66.60	**$57.16**	-14%
Plant & Capital Equipment	5.01	4.00	**3.30**	-18%
Environmental Restoration	15.30	14.92	**15.03**	+1%
Cooperative Research and Develop.	8.86	6.30	**4.00**	-36%
Fuels Programs (Regulatory)	3.00	2.69	**2.19**	-19%
Mining Research and Development	0	40.00	**5.00**	NA (transfer)
DOE-Wide Working Capital Fund	[4.27]	[4.33]	**2.95**	-17%

Note: Working capital fund figures for FY 1995 and FY 1996 are estimated for comparability purposes only.

Program Direction and Management Support provides Federal salaries and other expenses. The significant reduction from FY 1995 to FY 1997 reflects the consolidation of the Fossil Energy R&D field structure and personnel downsizing throughout our organization:

- At headquarters, salaries and travel expenses will be reduced by nearly 17% from FY 1995 levels, while contract support increases slightly as we must now budget for a prorata share of the maintenance and operation of the DOE-wide computer network.

- In our R&D field offices, salaries, benefits and travel expenses will decline by more than 18% from FY 1995 to FY 1997 while technical and management contract support will decrease by more than 57% due to the consolidation of administrative functions at our field centers. (This significant reduction is masked somewhat by the inclusion of $6 million in contract services for FY 1997 to pay transition costs associated with the privatization of the National Institute for Petroleum and Energy Research).

Plant and Capital Equipment funding provides for the continued upgrading of the Office of Fossil Energy's local area computer network, video conferencinng equipment (which is saving substantial travel costs), and other hardware needs. Also included is $2.3 million for general plant projects at our R&D field centers.

The **Environmental Restoration** budget funds the mandated cleanup of contamination at Fossil Energy sites and former Fossil Energy research and development projects, and ensures that our field facilities are in compliance with environmental, safety and health standards.

The **Cooperative Research and Development** budget provides Federal matching funds to the University of North Dakota Energy and Environmental Research Center and the Western Research Institute, permitting these former DOE facilities to attract private sector cost-sharing.

The **Fuels Program** budget provides the adminstrative expenses for carrying out legally required reviews of applications for natural gas imports and exports, exports of electricity, and the construction and operation of electric transmission lines across the U.S. border.

The **Mining R&D** budget proposal reflects Congress' action to transfer to the Department of Energy health and safety, materials, and mineral reclamation research activities of the Bureau of Mines. In FY 1996, these activities amounted to $40 million which was transferred to the Fossil Energy budget; in FY 1997, we propose to retain only the materials R&D effort, funded at $5 million, and transfer the health and safety program to the Department of Health and Human Services.

The **Working Capital Fund** is a new item being implemented DOE-wide in FY 1997. The fund will allocate costs to the program offices for rent, utilities, telephone and copier services, and other overhead charges previously funded in the Departmental Administration account. For comparison, pro rata estimates are shown for previous years.

THE CLEAN COAL TECHNOLOGY BUDGET REQUEST

The Department believes it can reduce the amount of funding currently appropriated by Congress for the Clean Coal Technology Program.

The General Accounting Office recently cited the Clean Coal Technology program as a model for successful public-private cooperation. One of the reasons why the program has become a government-industry "success story" was the willingness of Congress to appropriate in advance the full funding required for the Government's share of the jointly-financed, first-of-a-kind projects. This advanced appropriation of $2.55 billion has given U.S. companies sufficient confidence to sign cooperative agreements committing nearly $5 billion of their own funds to more than 40 projects.

Today, the most successful of these projects have established the technical foundation for a new era of high efficiency, environmentally clean energy production from coal. More than $9 billion in domestic and international projects are benefitting from the technologies demonstrated in the Clean Coal Technology Program. U.S. companies now can offer sulfur reducing technologies which are half the cost of previous technologies. NOx reduction technologies demonstrated in the Clean Coal Technology Program already have been retrofitted on about one-fourth of the Nation's coal-fired capacity.

Some of the remaining projects in the program, however, are likely not to complete their planned programs. In some cases, market conditions have changed; in other cases, the private sector partners have reevaluated their technology investment strategies. As a result, by the end of 1996, we expect that some projects will not go forward and others will be restructured resulting in significant cost savings.

Our FY 1997 budget proposal balances our need to maintain the Federal cost-sharing commitment to ongoing, viable projects, while at the same time, returning to the Treasury funding that is no longer needed and that can be used for deficit reduction.

We are proposing to rescind $325 million from funding previously appropriated for the Clean Coal Technology Program. The original funding level approved by Congress was $2.75 billion. In FY 1996, Congress approved a rescission of $200 million, reducing the total Federal funding to $2.55 billion. The FY 1997 proposed rescission would further reduce the Federal share to $2.225 billion. In addition, the Department is proposing to defer authority to spend nearly $313 million of available funds until FY 1998. Given that virtually all final project funding decisions will be made by the end of 1996, we should be in a position to recommend to Congress whether all or part of the $313 million in deferred spending authority will be needed in FY 1998 to meet prior Federal commitments.

The Clean Coal Technology funding profile is:

CLEAN COAL TECHNOLOGY (Budget Authority - $ in millions)	FY 1995	FY 1996	**FY 1997**	FY 1998
Previously Appropriated Funding	$36.28	$150.00	**$137.88**	
Proposed Rescission			**-325.00**	
Delay in Obligational Authority			**-312.88**	+$312.88
New Funding Profile			**-$500.00**	+$312.88

THE STRATEGIC PETROLEUM RESERVE BUDGET

The FY 1997 budget request for the Strategic Petroleum Reserve (SPR) is necessary to continue the substantial progress already made in bringing the Nation's emergency oil stockpile back to full readiness. The apparent significant increase in budget authority, however, as the following chart shows, is misleading.

Because prior year balances in the SPR oil account (from the sale of SPR oil during the Persian Gulf war) have now been exhausted, the source of SPR funding has changed. For the first time in several years, it is necessary to request a full level of new budget authority to maintain operations of the SPR. However, a comparison of funding levels for the facilities and management indicates that our FY 1997 request is actually a reduction from previous years.

STRATEGIC PETROLEUM RESERVE (Budget Authority - $ in millions)	FY 1995	FY 1996 Conference	**FY 1997 Request**	Change from FY96
Strategic Petroleum Reserve Account				
- Facilities Development	$226.93	$270.17	**$204.71**	-24%
- Management	16.73	16.83	**16.59**	-1%
Total, Strategic Petroleum Reserve	$243.66	$287.00	**$221.30**	-23%

Offsetting SPR Petroleum Accounts				
- Transfer to Facilities Account	-90.76	-187.00	**0**	
- Transfer to R&D Account	-17.00	--	**0**	
- Weeks Island Sale Proceeds	--	-100.00	**0**	
Total - New Budget Authority	$135.90	0	**$221.30**	

The Strategic Petroleum Reserve has served as the Nation's first and principal defense against oil price shocks and supply interruptions for nearly 20 years since oil fill began in 1976. During that time, more than $20 billion has been invested in purchasing more than 590 million barrels of crude oil (equivalent to 74 days of imports) and in the facilities to store and deliver the crude oil quickly into the U.S. market if necessary to counter an energy emergency. Today, the Reserve is well on its way toward returning to its full capabilities following a series of naturally-occurring geological problems:

- By the end of this year, all oil will have been removed from the Weeks Island site in Louisiana where a natural fracture has created concerns about the site's structural integrity;
- The problem of natural geologic heating that has raised the temperature of some of the stored oil above the safety threshold for drawdown has been corrected through the installation of surface heat exchangers;
- Oil that has an elevated level of methane caused by years of prolonged storage is being degassed at a rate of 100,000 to 200,000 barrels per day. The inventory of one site (West Hackberry) has been completely degassed, and our goal is to complete the entire degasification operations in 1998. At that point, drawdown capability will be extended to 3.9 million barrels per day compared to the current 3.4 million barrels per day.

In FY 1997, requested funding will be needed to complete the degasification and Weeks Island decommissioning efforts and to continue life extension and upgrading of the Reserve's infrastructure. By FY2000, the refurbishment program will be complete, and the Reserve will be capable of meeting emergency needs through at least the year 2025. The life-extension program will also have accomplished a major, long-term cost-savings goal: all new and replacement equipment will have been standardized, thereby streamlining warehousing, maintenance and operations.

With fiscal constraints requiring suspension of further oil fill, up to 80 million barrels of unused cavern capacity remains in the Reserve. DOE has approached several International Energy Agency member nations or nations seeking IEA membership to promote the use of this idle cavern space to meet their emergency preparedness obligations. Crude oil storage in the Reserve's salt caverns at a cost of less than $2 per barrel annually may be an economically attractive option for countries facing construction costs of $15 to $50 per barrel for surface tanks or hard rock caverns plus additional costs to operate the reserves. In addition to generating revenues for the United States, such an arrangement could prove advantageous both to other stockpiling nations and to the U.S. by providing economical storage to other countries, promoting global oil stockpiling, and preserving storage caverns for future use. In pursuing this option, the Department will protect the integrity of the Reserve's facilities for future use and the ability of the United States to sell its stockpiled oil in an energy emergency.

Also, the Department has begun soliciting bids from private companies to lease or buy certain parts of the Reserve's oil delivery infrastructure. In some cases, for example the Weeks Island site pipeline, the Department will no longer require the facilities. In other cases, facilities are underutilized. DOE is pursuing an initiative to turn these facilities into a source of Federal revenue.

THE NAVAL PETROLEUM AND OIL SHALE RESERVES BUDGET

The Department is requesting a minimum baseline budget for adequately maintaining the Naval Petroleum and Oil Shale Reserves while initiatives are underway to prepare the Elk Hills Reserve for divestiture and ascertain the future of the remaining Reserves.

In February 1996, Congress passed and the President signed the National Defense Authorization Act for FY 1996 (P.L. 104-106) which began the process of ending nearly a decade-long uncertainty about the fate of the government-owned portion of the Naval Petroleum Reserves.

Established early this century to provide a source of crude oil for the U.S. Navy, the Naval Petroleum Reserves no longer serve a national defense purpose. Since 1976, they have operated essentially as a commercial business, generating more than $13 billion in net proceeds to the U.S. Treasury. However, three Administrations, including the Clinton Administration, have questioned the role of Government as the owner of commercial oil and gas fields and sought authority to lease or sell these fields. Moreover, continued fiscal constraints have made it difficult to invest funding for facility upgrading and field maintenance necessary to maximize production and profits.

With the Congressional guidance provided by the National Defense Authorization Act, the Department is moving to place the Government's share of the Elk Hills field – the largest of the Naval Petroleum Reserves – on the market. Congress incorporated a legislative safeguard requiring the Department to determine that the market value of the field exceeds the value to the taxpayer of continued Federal ownership. If it does not, the Government will not proceed with the sale.

The law requires divestiture by February 10, 1998. As a result, the Department assumes that it will retain ownership of and management and responsibility for Elk Hills through FY 1997. Also, the legislation requires the Department to produce the Reserves at the maximum daily rates which will permit economic development. Finally, the legislation authorizes the Department to study potential options for the other properties in the Naval Petroleum and Oil Shale Reserves but does not authorize their sale.

The FY 1997 budget, therefore, provides a minimum level of funding to maintain proper stewardship of the fields while the divestiture and study initiatives are underway. The funding level will reduce the drilling and well remediation program to minimum levels while other development activities will be eliminated.

The funding profile is

NAVAL PETROLEUM & OIL SHALE RESERVES (Budget Authority - $ in millions)	FY 1995	FY 1996 Conference	**FY 1997 Request**	Change from FY96
Reserves Nos. 1 (Elk Hills) and 2 (Buena Vista Hills)	$164.19	$126.59	**$132.00**	+4%
Reserve No. 3 (Teapot Dome)	12.87	15.60	**8.40**	-46%
Naval Oil Shale Reserves	2.30	0	**1.40**	
Program Direction	7.63	6.60	**7.70**	+17%
Total	$186.99	$148.79	**$149.50**	+1%

CONCLUSION

The Office of Fossil Energy has made many difficult but necessary decisions in developing its FY 1997 budget. While it meets Congressional guidance in terms of fiscal constraint, appropriateness of the Federal role, and management streamlining, this budget proposal should continue to be seen as a transition:

- In the R&D program, we are transitioning from an engineering-dominated program to a more fundamental, core science and technology program. Planning is underway to define this core program for the post-2000 timeframe. Meanwhile, it is important that we continue to capture the benefits of investments made to date in technologies that are only 2-4 years away from realizing their R&D goals.

- In the Clean Coal Technology Program, we are entering the final phase of federal funding. Most of the early projects have completed their demonstration phase; several of the more recent, larger scale projects are in construction or operations. The Federal role soon will be concentrated solely on monitoring the Federal investment and ensuring that the Nation benefits to the greatest extent possible from these first-of-a-kind technologies.

- The Strategic Petroleum Reserve continues in transition from an emphasis on building a sufficient oil stockpile to a maintenance and operational mode, ensuring that the Nation's "oil insurance policy" remains readily available for use well into the next century; and

- The Naval Petroleum and Oil Shale Reserves are in transition from government-run assets to privately-owned and operated properties, assuming that the market places sufficient value on the fields.

These transitions are bringing profound changes to the way the Office of Fossil Energy looks and operates. The commitment of both the Congress and the Administration to proceed with this transition in the most rational and responsible manner possible is critical if we are to maintain a focused, efficient, and effective Fossil Energy program that truly benefits this Nation.

We look forward to writing this new chapter for Fossil Energy in collaboration with this subcommittee.

Mr. Chairman, that completes my prepared statement.

STRATEGIC PETROLEUM RESERVE

Mr. REGULA. Do you think that maintaining SPR is relevant in today's world since there seems to be concern with the idea that the SPR becomes a bank—sell some SPR oil and you've got a little bit of extra money for other projects?

Ms. GODLEY. The SPR continues to be very relevant, Mr. Chairman, in this economy and in these times in our oil markets. It is an insurance policy, that's how we've always treated it. I think the question is, "How much insurance is enough?" Just like for your family or your business or to keep people in your business, how much insurance is enough?

Mr. REGULA. How many days' supply do we have in the SPR?

Ms. GODLEY. We have about 70 days of import offsets.

Mr. REGULA. The 70 days are just the import offsets?

Ms. GODLEY. Right, that's correct.

Mr. REGULA. Don't we have some international obligations? As I recall, when we established the SPR, this was predicated on some agreements with other countries in terms of free world energy and dependence. Is that correct?

Ms. GODLEY. That's correct. The International Energy Agency, which we are a member of, requires each country to maintain storage of 90 days of net imports to that country. The 90 days worth of net imports inventories can be met both by Federal storage as well as private storage. We have 74 days in our SPR stockpiles currently, and about 100 days worth in private stockpiles or private storage.

Mr. REGULA. So if we allow the SPR to erode significantly, we would really be violating our agreements. Is that correct?

Ms. GODLEY. We would certainly not be supporting those agreements with the spirit with which they were intended.

Mr. REGULA. Well, I note that, as you well know, we've funded the operations in 1996 from the sale of oil, should we do this again in 1997?

Ms. GODLEY. I'm sorry?

Mr. REGULA. We funded some of the operations of the SPR in 1996 by selling oil; Week's Island is an example. Do you think we ought to sell anymore SPR oil to operate the facilities in 1997?

Ms. GODLEY. The proposal for the sale of 7 million barrels in our 1996 budget was associated with the costs of moving the Week's Island oil and, shutting down the Week's Island site. Our rationale for that is that this is a one-time cost that was related to maintaining the reserve. If we were to take the SPR totally in a vacuum in the Federal budget, we would not only maintain the SPR in its current size, but go ahead and fill it to its capacity. But we're not dealing with the cost of this operation in a vacuum, and I think that you know probably better than anyone in this room the pressures on how to balance our budgetary priorities. We think that we have an adequate insurance with the stores of SPR oil that the Administration is proposing, and that that provides an adequate insurance to us with respect to security against or offsetting importing——

Mr. REGULA. Should logically the cost of the SPRs operations and maintenance be charged to national security rather than to our budget?

Ms. GODLEY. There could be an argument for that.

Mr. REGULA. That attracts me. [Laughter.]

What's the current capacity of the SPR? And how much is in there?

Ms. GODLEY. It has a 680 million barrel capacity. We currently have 587 million barrels in storage after a recent sale of 5 million barrels to meet our Week's Island costs.

CLEAN COAL TECHNOLOGY

Mr. REGULA. In Fiscal Year 1995, Congress rescinded $200 million in clean coal funding. What projects have been terminated and what savings have been realized in achieving the rescission?

Ms. GODLEY. One—we've made substantial progress towards achieving the rescission. One project on which we've issued notice of termination is the Thermo–Chem project. We have other projects that we're in the course of negotiating with project sponsors to restructure and to combine some projects. Those negotiations are ongoing, and we expect to complete those shortly. Those will result in some additional savings.

Mr. REGULA. Staff advises me that this is probably $100 million, so you still have $100 million to go.

Ms. GODLEY. Right, and we're working on it. Again, each of these projects are very complex projects in different phases of development. I think for the ones that are pending, we are working on restructuring them with a particular goal towards meeting those rescission dollars.

Mr. REGULA. Wouldn't it be premature to rescind further money until you can reach the $200 million that was originally agreed to?

Ms. GODLEY. Since the beginning of the program, we have always believed that these are all high-risk, high-capital-intensive projects. We have employed what we call a probalistic analysis which takes into account changing market circumstances as well as the particular status of each project, and upon applying that probablistic study, we think that we can meet an additional rescission over the life of the program without imposing any kind of unilateral terminations on a project, which we do not intend to do.

FOSSIL ENERGY RESEARCH AND DEVELOPMENT FUNDING

Mr. REGULA. I noticed that your coal research is down 15 percent; natural gas, 4; and oil research, 8. Does this indicate a declining role for coal in our overall energy needs?

Ms. GODLEY. Not at all. Certainly not. I think that when you're working in an environment such as we are and trying to balance your investments, you must reduce the overall budgetary requirements, and then try to determine what is the right balance of investment in this energy or research portfolio. At least for the last two years, we've been trying to look at how we're balancing our investment in the energy resource side of the portfolio. How do we, for example, develop fuels and prepare them for market and use versus the fossil fuel utilization, or the burning or combustion of fossil fuels and other applications of those fuels?

When you break out the program that way, about 33 percent of our Fiscal Year 1997 request would be dedicated to what I call fuel resource investments, as opposed to about 67 percent on the use side. I think, again, given our emphasis on the environment, reducing and mitigating the environmental impacts of the use of fossil fuels, that that is an appropriate balance. I think it would be a mistake to further undercut or reduce our investment in the energy resource side of that ledger any more than we already have done.

COAL RESEARCH

Mr. REGULA. Given the concern about clean air, do you see coal having a diminished role as an energy source? We're particularly looking at the power growth, a 30 percent growth which would normally be coal.

Ms. GODLEY. No, it will not have a diminished role.

In the increase that you see, particularly in electric power generation numbers on that board, EIA projections has natural gas sharing a larger portion of that increased market in the year 2015, but coal use also increases to meet that demand as well.

Mr. REGULA. Has there been any success with co-firing where you have gas combined with coal to get perhaps better combustion and reduce the emissions?

Ms. GODLEY. That, in fact, is an important phase of our Advanced Power Systems Research Program.

Ms. GODLEY. Mr. Skaggs?

NAVAL PETROLEUM RESERVES

Mr. SKAGGS. Good morning. I wanted to touch on several things with you, a couple of particular points and then one more philosophical perhaps.

You were talking earlier and also in your prepared statement about plans to sell Elk Hills and referencing petroleum reserves and oil shale reserves. I believe you are—the great you, not you personally, but the administration, presumably your shop—is to be looking at the possible retention and leasing rather than the sale of the two oil shale reserves in Colorado. That's a matter of great interest both to the State government and to the local industry at home. They make, I might say, a persuasive case that that is everyone's long-term better economic interests. I'm just wondering how you're doing on that examination and analysis.

Ms. GODLEY. I agree with you, it's time that we took a close look at the best disposition of those assets, and they are very different assets from the producing oil field that we enjoy as an asset at Elk Hills. We have selected a firm that will undertake that study as required by the legislation. The legislation required us to do that. That expert is looking at the job and doing a scope of the job and trying to determine from it an expert point of view, as opposed to those of us who were folks working on the statute, or even myself, in working on what exactly is the amount of time and the degree of work and information that would need to be undertaken in order to do that study in a responsible fashion. These are, again, very valuable assets, and I want to make sure that the study is thoroughly done. So it is underway.

Mr. SKAGGS. The scoping is underway?

Ms. GODLEY. Yes.

Mr. SKAGGS. And then you'll be able to tell how long the real study will take, I assume?

Ms. GODLEY. Yes, and we've already had some discussions with this firm that they would be able to give us a report by mid to late summer. So we're expecting to report to Congress in the fall. I understand that the statute imposed a June deadline on us; frankly, that June deadline occurred from an earlier draft that was being considered in the earlier months of the legislative process, and that just slipped by us ultimately when the statute was passed. We didn't add on the months that expired since the legislation was originally proposed. But it certainly will be done and submitted to Congress with a plan, legislation or otherwise, that's needed to implement that plan, well before the end of this year.

Mr. SKAGGS. And it will thoroughly examine, I'm sure, the comparative costs and benefits to the Federal taxpayer and to local industry and State government that the different options present?

Ms. GODLEY. We haven't designed the study yet. I know that the statute looked at or asked us to examine the best disposition for purposes of value to the United States Government and to the taxpayer, but I don't know—we can certainly consider other information.

Mr. SKAGGS. It is those properties. But I think the question now is much more traditional exploration and development of resources with the shale oil being still somewhat of a myth resource for us.

Mr. REGULA. So the properties are being drilled in conventional production.

Mr. SKAGGS. I think the industry thinks there's real potential there. I don't know how much current drilling is going on.

Ms. GODLEY. There are significant natural gas reserves in some of the oil shale properties that are basically producing just enough of the natural gas to protect against drilling by others in adjacent properties. But there are significant natural gas deposits.

Mr. REGULA. Are these lands owned by the United States Government?

Ms. GODLEY. Yes.

Mr. REGULA. So you lease them to the private sector to drill?

Ms. GODLEY. That would be an option. Currently, we're operating them ourselves.

Mr. REGULA. And selling the product?

Ms. GODLEY. Correct.

Mr. REGULA. I remember that we spent lots of dollars setting up these systems to produce oil. It just didn't pan out.

Mr. SKAGGS. Stan is reminding me of the great saying that oil shale has a wonderful future. It always has. It always will. [Laughter.]

Someday.

FOSSIL ENERGY RESEARCH AND DEVELOPMENT

You mentioned in your comments the significance in environmental terms of some of the research that is going on. I'm just curious what sort of coordination goes on between your work in this area and the State Department. The Under Secretary for Global

Affairs, who is an old friend and is very interested in these matters for purposes of international environmental policy——

Ms. GODLEY. We do coordinate in connection with our efforts to support industry and deploy environmental-related technologies, particularly in advanced power generation technologies, which is where we see big markets. Also, with companies who are interested in investing in other oil-rich countries to help diversify the oil resource base in the world, again to diversify our resources outside perhaps of the Persian Gulf. We cooperate in intergovernmental activities such as the Gore-Chernomyrdin Commission, which again involves the State Department and other agencies. We have a number of activities with USAID to support their activities in technology development in Poland and the Czech Republic as well as other developing nations, such as India, Indonesia.

We do conduct what we call reverse visitations between technical developers and users of technologies and other countries both coming here to the United States and sending or supporting our scientists and technology developers to other countries in each case involving the local embassy officials, economic officers and developers of U.S. interests on the spot. So we don't have an overarching program perhaps with the State Department, but each of our activities that we undertake in those areas are taken either in direct partnership with parts of the State Department or certainly with their cooperation.

Mr. SKAGGS. Well, I didn't know whether you had a direct participation in the greening of Secretary Christopher or not.

Ms. GODLEY. Not directly, no.

Mr. REGULA. "In the greening," I like that.

Mr. SKAGGS. I'm sure you're aware that we have seen the ascendancy around this place, present company excluded, of a certain rampant free-market purism that basically denies theoretical level, as well as a budgetary level, the value of government investment in R&D. Will the kind of numbers that you include in your statement, be more than sufficient to drive private industry decisions. Is it antithetical to America to have the Government mucking around in what can best be left to private industry. How do you reply to those critics and the people that would love to see government R&D investments in whatever department basically tossed?

Ms. GODLEY. Right. And as you already referred to, we developed a response to those thoughts in some detail in the written testimony. But let me just give you one example, I think it takes a big part of our program. And that is when you look at, for example, environmental technologies, to go back to the subject that you mentioned, particularly in the area of electric power generation.

We spoke a bit earlier of the situation in which the utility industry today including not just the public utilities and utility companies, but the independent power producers as well are in a very conservative investment period. As they are facing increased competition, their profit margins and the future of their profit margins are looking very slim. Industry itself is not investing, or is reducing its investments in the utility business and power generation significantly. The membership of EPRI, the industry investment group, is significantly down. Contributions are down.

My understanding is that in Florida, where there is great competition already among utility companies, that there is no remaining Florida member among EPRI membership. So that we have evidence, in fact, and a study that we also have looked at showing significantly decreasing investment in energy research by our private sector. And when you think about what would be motivating companies when facing these kinds of reducing profit margins and increased competition with responsibility to their shareholders, what would be motivating them to increase the environmental effectiveness of technology? To take and invest in high-risk, long-term technological developments such as we're undertaking in our program that would increase efficiencies of, for example, coal-power generation up to 55 to 60 percent that drives the cost down at the same time 10 to 20 percent, that reduces emissions of nitrogen oxide and SO_2 and other particulates of toxics by significant degrees, up to 90–98 percent in some cases. Those are not profit-motivated decisions. Those are public-interest-motivated technologies that will find a marketplace as we demonstrate them and bring the cost down. But the private sector is currently not investing in them.

Going back to the global climate change issue, again, the world's increase in energy requirements will be met primarily by fossil fuels. Again, the man-made carbon emissions are created much more outside of the United States than inside. We have foreign countries, other governments such as the Japanese government fully funding and subsidizing their energy research industries much more than does the United States.

So all of these factors—it's not a simple answer—militate, we believe, towards a significant, but very well-managed and concentrated government investment in energy, fossil energy technology research.

Mr. REGULA. Will you yield?

Mr. SKAGGS. Certainly.

GOVERNMENT INDUSTRY PARTNERSHIP

Mr. REGULA. I think you're making a case for the partnership; am I correct in that? That as long as there is some Federal involvement, the private sector is more likely to respond with funding for research.

Ms. GODLEY. That's right. I think that it's a matter of both leveraging Federal dollars as well as leveraging industry dollars. And an analogy I like to think about as I'm coming into this area of Federal investment in energy research is oftentimes when the industrial partners in a high capital cost power generation demonstration project, go to the bank to ask the bank to loan them money on this high-risk technology, it reminds me of when I bought my first house. And they said, "Well, where is your credit record? You know, how do I know that this investment is going to pay off for us?" And as long as my parents were willing to co-sign the note and stand behind that with their credit, the bank was willing to loan me or give me my mortgage.

I think that a very similar analogy can be made in some of these high-capital investments made by our companies. Banks are much more willing to fund the private industry portion of these technology development projects knowing that the Federal Government is willing to step up and take part of that risk as well.

So you're exactly right, Mr. Chairman. This is a two-way street. It helps facilitate a Federal interest at the same time as we're leveraging industry dollars in these important technologies.

Mr. SKAGGS. Do you compare notes with your counterparts at the Advanced Technology Program in the Commerce Department, which is essentially the same kind of effort to leverage private R&D money in some higher-risk new technologies with some Federal seed money?

Ms. GODLEY. Yes. There is an interagency group that does plan—for example, there is a clean coal technology subgroup of our interagency group that looks and monitors the parallel efforts in the agencies.

Mr. SKAGGS. Your ultimate response to those that question the validity of these investments is simply that private industry, for whatever, reasons isn't going to do this by itself, and that we can suffer competitively if we just let it go by?

Ms. GODLEY. Yes. That's the core of the argument.

WORKING CAPITAL FUND

Mr. SKAGGS. Looking at the chart on page 9, I'm just curious about a couple of things. What is the BOEY working capital fund? Is that a mutual fund or——

[Laughter.]

Ms. GODLEY. I wish. No, many of the administrative costs of our program of the various offices within the Department of Energy were funded in a departmentwide administrative fund. Our capital costs leasing space, in the Forrestal building, and so forth, of running our operations are now being distributed among the programs and borne by them.

Mr. SKAGGS. So it really is an administrative line? It has nothing to do with your R&D operation per se?

Ms. GODLEY. Correct.

COOPERATIVE RESEARCH AND DEVELOPMENT

Mr. SKAGGS. And what about the cooperative R&D, which is a small number but suffers the largest decline, and given what "cooperative" in my mind probably alludes to, some of this partnership stuff we're talking about, what's going on there?

Ms. GODLEY. This is really sort of a historical feature of our budget. We used to have several energy technology centers that were privatized in the 1980s or the process of beginning to privatize them began in the 1980s. This fund is for two of those centers, WRI and UNDEERC—the Western Research Institute and the University of North Dakota Energy and Environmental Research Center.

The original plan was to phase out government funding of those laboratories or institutions, and basically they have come back to us and asked for some more money. This is our effort again to wean them away from direct funding, but I need to emphasize that important work is being done at these centers. It is industry cost-shared work. And these centers, along with other research providers, will be eligible to compete for research work with the Department of Energy. So we're basically, again, trying to wean them away from direct government funding, but they are still eligible for competitive funding.

Mr. SKAGGS. What would you like to go on the line in predicting will be your most significant R&D accomplishment that you can come back and brag about next year, assuming we're all around?

CLEAN COAL TECHNOLOGY PROJECTS

Ms. GODLEY. I think that the most significant will be to finish or nearly finished construction on two more integrated gasification combined cycle demonstration projects. These are in the clean coal program. We have one IGCC project that began operations in 1995. It's the Wabash plant. We began operation in November of 1995. These truly are leap-frog advances in power-generation technologies—with huge increases in efficiency and fuel usage, huge decreases in the emissions, while we're driving down ultimately, hopefully, the costs as we demonstrate this technology and drive down the cost of putting these plants in place.

Again, one of these two new projects will be completed this year. We'll see our Sierra Pacific project up and running by the beginning of the next calendar year.

Mr. SKAGGS. What's the funding mix with private industry on those two?

Ms. GODLEY. In the clean coal program itself, the funding mix is about two-thirds industry, one-third government, and I'm not really sure what the specific mix is for those three projects, but I'll provide that information.

Mr. SKAGGS. Don't worry about it. But they are roughly in that ratio?

Ms. GODLEY. Correct.

Mr. SKAGGS. And what exactly is the technology that drives that quantum jump in efficiency?

Ms. GODLEY. It's a gasification technology that basically makes the burning of coal more efficient in the conversion process.

Mr. SKAGGS. Thank you.

Mr. REGULA. Following up on that question, does this mean that you get more BTUs out of the coal in terms of the power that's generated?

Ms. GODLEY. Yes. You can use less coal to make the same amount of energy, yes.

Mr. REGULA. And does it at the same time produce less emissions?

Ms. GODLEY. Yes.

Mr. REGULA. Is that probably due to pressurization, i.e, factors of that nature?

Ms. GODLEY. I confess, that as a lawyer, I am not a student or articulate in the technology itself, but we can certainly provide more detailed information for the record on the question.

[The information follows.]

INTEGRATED GASIFICATION COMBINED CYCLE ENVIRONMENTAL EMISSIONS

The higher operating temperatures of the exit gas stream, (from the gasifier) and the high operating temperatures and pressures within the gas turbine result in a greater overall efficiency. It is this "extra" recoverable heat that is used to produce additional electricity through conventional steam turbines. These increased thermal efficiencies mean that less coal is consumed to produce the same amount of electricity.

Operating parameters of the gas turbine require that the syngas stream have extremely low levels of pollution. Sulfur emissions (unlike in coal combustion) from the gasifier is released in the form of hydrogen sulfide. Sulfur is captured (with removal rates of over 99 percent), and in many processes it is extracted and sold as byproduct. Nitrogen emissions reductions can approach 40 percent. These NO_X can be converted to ammonia and removed by commercially available technologies and sold as well. IGCC technologies can meet zero waste water discharge. In addition, the high efficiency attainable with IGCC plants can reduce CO_2 efficiencies by over 40%.

Mr. REGULA. Do you think that the opportunity to sell our technology overseas is still substantial?

Ms. GODLEY. Definitely. The net market—and again, I've given some numbers in my testimony—is estimated to be, I think, $1 trillion over the next 20 years, a huge magnitude of potential market for increased power generation overseas.

Mr. REGULA. Do you find concomitant with that an enhanced interest in reducing emissions?

Ms. GODLEY. Yes. Again, most of the increased carbon emissions, man-made carbon emissions, are going to occur outside of the United States particularly as power generation increases our energy requirements. Fossil fuels, coal, as well as oil will increase in consumption along with the carbon emissions.

Mr. REGULA. It has an impact on our atmosphere, too, does it not?

Ms. GODLEY. Frankly, I'm not informed enough to know precisely what the impact is, for example, above the United States, but it certainly impacts, by most opinions, global climate situations and global climate change.

Mr. REGULA. I saw or heard someone recently say that they saw the impact of Chernobyl in the atmosphere in California, so obviously these things travel.

Mr. Yates?

Mr. YATES. When will those projects be completed?

Ms. GODLEY. The three IGCC projects?

Mr. YATES. Yes.

Mr. RUDINS. It's a three-to-four year operating period after the——

Ms. GODLEY. Wabash is operating. Tampa construction will be completed, by the end of the year, and Sierra Pacific construction should be completed by the beginning of the annual year 1997, and they have about a three and a half year operating period for each project.

Mr. YATES. What's the difference between the three of them?

Ms. GODLEY. They are slightly different technologies——

Mr. YATES. Working to the same end?

Ms. GODLEY. Yes, increased efficiencies, reduced emissions, driving down costs.

Mr. YATES. Does it make any difference whether it's high sulphur coal or low-sulphur coal that you use in any of these projects?

Ms. GODLEY. I don't know the answer to that.

Mr. RUDINS. They can use both.

Ms. GODLEY. They can use both.

Mr. YATES. They can use both, so that it may be a boon for the States that have clean coal as well those that have high sulphur coal?

Ms. GODLEY. Yes, there will be a market for all coals upon the deployment of these technologies.

Mr. YATES. When you talk about the completion of these projects in two or three years, I think you're saying—does that mean that appropriations by the Federal Government will end?

Ms. GODLEY. Funding under the Clean Coal Technology Program is finished at the point that the operation period is completed, which is the three and a half year process, and then the reporting requirements with respect to recording the benefit or the outcome of the operating of the plant. Federal funding of these projects does stop at that point under the Clean Coal Program.

Mr. YATES. What other projects are there other than the three with which you can see the light at the end of the tunnel? What about the others?

Ms. GODLEY. Eighteen of the projects in the Clean Coal Technology Program have been completed and are finished with our funding. Eight currently are in operation, five are under construction, eleven are in the design stage, and one is still subject to some negotiations for cooperative agreement.

Mr. YATES. You say five have been completed?

Ms. GODLEY. Eighteen have been completed.

Mr. YATES. Any of them successfully?

Ms. GODLEY. Many of them successfully. In fact, for example the NO_X control systems that have been developed in part of our Clean Coal Program are now being used in a quarter of the power plants in the country.

Mr. YATES. Would you at this stage say that the government investment in the Clean Coal Program is well justified?

Ms. GODLEY. Definitely well justified. I think that, as you will recall, of course, having played an important part in the development of that program, we're really reaching the portion of the program that may have the most significance, and that is in our large demonstration projects of advanced power-generation technologies. Those are the projects that are just beginning to come out of the construction period and the beginning operation period. The proof will be in the pudding with those projects, but they are very promising, and, again, these are the projects that will have the major, future environmental and cost benefits, for the power generation in this country as well as in the international market.

Mr. YATES. Do all of these carry with them the same kind of partnership, financial partnership, that was contained in the answer you gave Mr. Skaggs, two-thirds, one-third?

Ms. GODLEY. That's the average for the whole program. They may differ within each project.

Speaking of cost-sharing, though, I think I should also just mention that those technologies that are successful, and do get deployed in the marketplace, the technology developer has a repayment obligation to the Federal Government to repay the Federal investment in that technology in that project. So it's another sort of unique aspect of the Clean Coal Program that I think it provides——

Mr. YATES. What happens to the patent rights, if any?

Ms. GODLEY. They are retained by the technology developer.

Mr. YATES. They are retained by the private company?

Ms. GODLEY. Correct.

Mr. YATES. Does the Federal Government get any share of them?

Ms. GODLEY. No. Having been repaid its investment, I think that—although I wasn't around when these policy decisions were being made, I think that the thought was that the Federal Government isn't in the technology deployment business.

Mr. YATES. Just in the banking business.

Ms. GODLEY. Just in the risk-sharing business.

Mr. YATES. I see, okay.

OIL AND GAS PROGRAMS

All right, now, with oil prices going up, I look with some askance at your statement on page 15, "with low oil prices expected to persist, the marginal——" I'm changing subjects, in case you didn't know.

Ms. GODLEY. Okay, thank you. Thanks for the warning. [Laughter.]

Mr. YATES. "With low oil prices expected to persist, the marginal U.S. producer"—now almost solely a small, independent company—"increasingly faces the likelihood of plugging and walking away from uneconomic wells——"

My God, you sound like you're dying.

Mr. REGULA. Bronchitis.

Mr. YATES. Why don't you go home and go to bed? I wouldn't put a thing over on you, you know that. [Laughter.]

Nobody can put anything over on you whether you're in bed or not. [Laughter.]

Anyway, do you still contend that low prices are expected to persist?

Ms. GODLEY. That is certainly still the long-term projection that is shared——

Mr. YATES. Long-term is how long?

Ms. GODLEY. Fifteen to twenty years. I think the EIA is through the year 2010, that oil prices will remain, I think a slight increase, but relatively flat. And that, I think, is a prediction or projection that is shared by many economic forecasters.

Mr. YATES. Well, then we look on page 15, and you see the research spending by the major oil companies, and they are all going down. And why are they all going down?

Ms. GODLEY. What we have been told, both in the National Petroleum Council's report on industry R&D needs and from our own discussions with members of the industry, the major oil companies are interested more in the big fields that are still offshore in other countries, certainly not in the lower 48 States. They have significantly divested themselves of interest in producing properties in the United States and gone overseas.

Mr. YATES. Why? Costs are so different?

Ms. GODLEY. Costs are lower overseas. The fields in the United States tend to be more produced, more mature fields, which are harder and more expensive to produce.

DEEP WATER DRILLING

Mr. YATES. What about the deep drilling? Am I taking too long?

Mr. REGULA. No. I was going to say, if you will yield, moratoria may have been a factor.

Mr. YATES. Oh, I would doubt that. Just think of how good-looking the California coast is without a forest of rigs out there. At any rate, that's another question that I'm sure you would want me to ask.

On page 13—I was distracted for a moment. What was your answer to deep water drilling in the Gulf?

Ms. GODLEY. I'm sorry, what was your question? [Laughter.]

Mr. YATES. My question was, following up your statement that the major oil companies are looking elsewhere than the United States for its possible fields, what about the proposal to go deep-water drilling in the Gulf?

Ms. GODLEY. Majors are invested in deep-water drilling in the Gulf. You may be aware of the Deep Star Project, for example, which involves, however, not a single major oil company, which was the prior practice of the major oil companies, but it's a consortium to go into the deep water.

Mr. YATES. I take it that it's the attitude of the—or is it the attitude of your Department that there be no drilling in ANWR?

Ms. GODLEY. Yes.

Mr. YATES. Even in spite of all of your statements?

Ms. GODLEY. Yes.

Mr. YATES. Okay. Is there a reason for that?

Ms. GODLEY. Yes, I think that, again, when you look at the fact that we do have low oil prices, certainly relative to the rest of the world, and affordable oil prices in this country continue to be predicted, that that is again just a balancing of interests. How do you value the environmental benefits of maintaining that area as a wilderness versus the potential or the need currently to engage in exploration and drilling activities in that area. And again, it's just another one of those balancing of interests that the administration has come down on the side of maintaining the environmental protection of that area.

Mr. YATES. Well, I'm with the administration on that one. I'm not sure the majority of this committee is, but they're not always right.

Mr. REGULA. They're always wrong——

[Laughter.]

Mr. YATES. More or less, yes. [Laughter.]

Now, you say the Fiscal Year 1997 fossil energy budget is attempting to address the situation about producers not investing in natural gas and not looking for oil because of low prices, and you're attempting to address that situation by developing technology that lower the cost of finding and producing crude oil and natural gas. Now we've been doing that for a lot of years. Have any of our efforts and any of our invested money paid off?

Ms. GODLEY. Yes, and earlier in the testimony, and I'll just mention it, we have listed how some of those investments have paid off. We have developed, for example, with a company called LOMAX, water flooding technology and the application of the technology in a single field, that has now been expanded or applied to 31 other development projects that increase the production. In that field, which happens to include Federal leases, enough Federal royalties were generated to pay for the entire field demonstration program. There are several others that we have demonstrated that cut the costs of exploring for and producing oil and natural gas.

And I might mention a couple of other aspects of that program headed towards the same end. One is our investment in what we call the industry laboratory partnership and particular technologies—that goes back to the chairman's point—that happen to engage industry in partnerships and leverage each of our dollars, but also engage our national laboratory system as it's moving towards new missions for its expertise. And certainly we have in our weapons laboratories with their underground testing of weaponry, advanced seismic technologies as well as computational technologies to interpret seismic data, that we are very interested in having a program to turn that information and that technology truly from swords to plowshares for purposes of use in the oil and gas industry.

I think another aspect of our program that is a little different is we have been working much more closely with the oil and gas industry, in both evaluating the thrusts of our programs and to give us feedback on our programs. In fact, that's why we asked the National Petroleum Council to update their 1988 study on the industry's R&D needs. What we heard from the independent community, again, those now principally responsible for developing our lower 48 State remaining fields, have said that what we need is access to technology. We need technology transfer activities that we can't really access on our own as an individual, small companies.

And that's why we have helped fund a program called the Petroleum Technology Transfer Council that was actually originated in the Independent Petroleum Association of America, to undertake those kinds of technology transfers which are very cost-effective programs, to get information out to independent producers about technologies that can be applied, and also to invest small dollars in helping these producers determine how to apply that already-developed technology. These are very cost-effective, relatively low dollars with a long-term benefit with development of resources.

Mr. YATES. I'll have more questions in writing, Mr. Chairman. Thank you.

Mr. REGULA. Mr. Nethercutt?

Mr. NETHERCUTT. Thank you, Mr. Chairman.

Ms. GODLEY. Good morning.

Mr. NETHERCUTT. Good morning. Nice to see you. I'm sorry I missed your testimony earlier. I apologize for being late.

ARCTIC NATIONAL WILDLIFE REFUGE

I wanted to make sure I understood your response to Mr. Yates' question regarding ANWR. You do or do not support development of ANWR?

Ms. GODLEY. I do not at this time support the development of ANWR.

Mr. NETHERCUTT. Is there a time——

Mr. YATES. Why at this time? Oh, sorry.

Mr. NETHERCUTT. Yes, that was my question to follow up. Why at this time do you not support it? And under what conditions do you envision supporting it?

Mr. YATES. George, we have different approaches to the phrase "at this time." I would hope that you would say "permanently." Now I don't know what she has in mind that may cause her to change her mind at some time in the future.

Mr. NETHERCUTT. That's my question. Frankly, I look at it from the other standpoint. I have had some experience with Alaska over the years. I was involved in passing the legislation that has to do with the Trans-Alaska Pipeline and I have some knowledge about the expectations about the future development of ANWR. So I'm interested more in why you are not doing it now beyond what I heard you state and under what circumstances you see development appropriate.

Ms. GODLEY. There's no mathematically-precise answer to when it will be appropriate in anyone's view, in the administration's view, to develop ANWR. I think, again, it's just a balance of interests. When do we project needing additional exploration and production work in what is an environmentally-pristine area, and who? In the mind of the administration, that balance has not been reached yet.

What factors could change that might change that analysis for this administration or future administrations might be that we have a severe energy shortage, as an example, on the one hand. The other is that we have developed the technology that will so enhance our ability to explore for oil and gas supplies with very minimal damage to the environment and also the production technologies as well.

So we could have a difference in our economic circumstances that would cause a different judgment in this country, and we could also have a difference in technology development that could change the opinion of many and the impact of development on many environmental areas.

Mr. NETHERCUTT. Would you agree that there has been minimal environmental damage resulting from the Trans-Alaska Oil Pipeline?

Ms. GODLEY. I think that it's been a well-managed project.

Mr. NETHERCUTT. And would you also agree that you can't just suddenly today decide we're in crisis and we need to develop next week and then have it occur the week after?

Ms. GODLEY. Right.

Mr. NETHERCUTT. Now I don't mean to be silly about the example, but we're talking about long-term development costs and investments. I guess I'm one of those who feels that while there is 19 million acres up there in ANWR and we're only going to look at 1.8 million, and given the history of the Trans-Alaska Pipeline and the way I believe it's been a success, it seems to me that we are being a little shortsighted, if we're assuming that there's going to be an automatic negative environmental impact on that area. Would you agree? I understand that you have to take the Administration's position and your own Department's position, but aren't we shortsighted by saying "Not at this time and absolutely no at the present."?

Ms. GODLEY. I don't share that judgment, and, again, it's not how you have a formulaic answer that can be proven or disproven.

It really is a judgment that can be seen differently by different points of view, and I think that it is hard to express the judgment.

BUREAU OF MINES TRANSFER

Mr. NETHERCUTT. Sure. Let me turn to the issue of mining and the Bureau of Mines. I was one of those people, contrary to the chairman and the rest of the committee, who didn't feel that the Bureau of Mines should have been eliminated. So I've reluctantly accepted it and now see that the administration wants to transfer the health and safety programs from Energy over to Health and Human Services. What's the reason for requesting that transfer of function out of a traditionally energy-related agency to one that is not?

Ms. GODLEY. My understanding is that that was in response to guidance that we received from Congress in the Conference Report as to the druthers of the committee. Also, as I understand, some of the rationale for that is the health and safety research, the research that would go to NIOSH, or the National Institute of Occupational Safety and Health, is principally health and safety-related research. I have been told that that is the last piece of occupational-related health and safety research that is not currently being conducted by NIOSH. I haven't tried to verify that myself, but I think that was part of the rationale for putting the bulk of that work—which is the bulk of the work of the Bureau of Mines remaining—into NIOSH.

Mr. NETHERCUTT [presiding]. We, in the West, have great supplies of undeveloped coal, low sulphur and ash coal deposits. A component of development, to the extent that the Nation and the industry wants to develop, is health and safety. There are some questions about the health and safety consequences about that development. Wouldn't you agree that keeping the health and safety functions in the energy program facilitates to a better extent the ability to develop those fossil energy sources that are out there, but that have as a component of undevelopment the issue of health and safety?

Ms. GODLEY. There's a nexus between that work, certainly, and it's the same stakeholders. Basically, the same customers, the users of those technologies tend to be the same companies, so that I think that there are a number of benefits or synergies that could be gained by keeping it in Energy, looking at technologies for the development of the coal-resource base. But I think that there are also synergies with NIOSH, and I think, again, as you are moving pieces of government around you try to balance all of the interests, and again, apparently the committee felt that the balance of interest fell with that portion of the work just fits about $32 million worth of work would go over to NIOSH.

Mr. NETHERCUTT. Yes, there's $5 million in Spokane and about $30 million in Pennsylvania. And to be frank with you on the record, I'm worried about maintaining that $5 million, which is really the only money in the entire western States for health and safety research—if it's transferred over to another agency for reinvention, or whatever the term is these days.

So I would urge you to rethink that or talk to your superiors with regard to whether it ought to stay where it is. If it stayed in the Fossil Energy Program, what would you envision as the details of the program? How would your managers administer it, assuming that it stayed where it is?

Ms. GODLEY. If it were to stay—and we did consider providing some information on these issues. I think that the health and safety program which involves, in my understanding, about 415 employees, and those employees are located at Pittsburgh at the Bruceton site, which is of course where our Pittsburgh Energy Technology Center is also co-located with the Bureau of Mines. So our management plan would have included consolidating those activities under a single, integrated management and administrative structure in our field organization.

Mr. NETHERCUTT. Well, I'd like to follow up on that if I may. I may have a question or two for the record.

FUEL CELLS

If I may ask one other question, Mr. Chairman? The Carbonate Fuel Cell Program has been funded by the Department of Energy for the last 15 years or so, a public investment with a potential public benefit. I am told that it is about three years from commercialization. The budget request that I've seen is less than last year's and I think that the developer's contract envisioned that it would be a higher number for 1997. Can we stay on schedule for a three-year expectation for commercialization if the budget cuts occur as you desire they be?

Ms. GODLEY. We can, but not with all the contractors. There are three contractors, as you may know, in that program, and I think that to keep them on schedule we would have to down-select or do a partial funding of one of the three and maintain full funding and schedule for the others. That would be one way to address it. But there, again, we have—the issue is, how do you balance and share the costs or distribute the costs of budget reduction in a way that doesn't interfere with the deployment of important technologies? And also it keeps a balanced portfolio. And that was just one of those difficult decisions that we think will not interfere with the ultimate deployment of that technology, but that will let us fund this work as well as other work in an effective way.

Mr. NETHERCUTT. May I have just a moment? I don't want to infringe on your time, Mr. Chairman.

Mr. REGULA [presiding]. Sure, take all the time you need.

Mr. NETHERCUTT. I'm on the agriculture subcommittee in appropriations in addition to this one and national security. Within the last few weeks it's come to my attention that there are auditing irregularities, and the inability to track clearly through the Inspector General's Office certain funds within an agency at one department. And I'm just wondering to what extent have you found any discrepancies or the inability to audit accurately any expenditures. Are you satisfied that your agency is spending the taxpayer's money properly, efficiently, and that there aren't any glaring deficiencies with regard to how your agency is conducting itself?

Ms. GODLEY. Certainly I am satisfied, and I don't know of any—to my knowledge, there are no significant irregularities. I will mention that in the work that we develop—as an example, in the Clean Coal Technology Program—while we do have auditing requirements in that program, it was structured in a way that would put more emphasis on performance and meeting performance metrics and is within budget and budget caps. That's why we have phased budget periods and hold money. We fund each phase once the performance criteria are met from the prior phase so that—to try to get away from what the contract reform team called "checkers checking checkers checking checkers"—to go to performance-based contracts as opposed to ones that have to be thoroughly and repeatedly audited.

That's not to say we don't have a big auditing effort, but we're trying, quite frankly, to get away from that and put our money into developing technologies meeting specific metrics and not on spending for constant and detailed auditing.

Mr. NETHERCUTT. Would you oppose a program of, say, quarterly reporting of how you have spent the prior quarter's money? Would that be difficult to administer? Would it be costly to administer?

Ms. GODLEY. No. In fact, I think that we do require that in most of our programs. We're working on that. [Laughter.]

There apparently are some statutory requirements along that line, but, frankly, having participated in the Department's contract reform effort, if we could move away from those kinds of activities and still be sure we're spending taxpayer dollars well based on the result of those investments, I think that would be a far greater and more effective expenditure of taxpayer dollars.

Mr. NETHERCUTT. Right, it would sure give more confidence to the public that tax dollars are not missing or unaccounted for.

Ms. GODLEY. Right.

Mr. NETHERCUTT. Thanks for the extra time, Mr. Chairman. Thank you.

Mr. REGULA. I see we've got a vote on, so I think we'll suspend for about five minutes. I've got a few more questions.

[Recess.]

Mr. REGULA. Joe, do you have any questions you want to ask?

Mr. SKEEN. No, I just wanted to see if you are doing your job. [Laughter.]

Mr. REGULA. That sort of narrows the field.

Just a few more. We'll have a number of questions for the record.

SALE OF NAVAL PETROLEUM RESERVES AT ELK HILLS

One is, what's the status of your efforts to sell Elk Hills?

Ms. GODLEY. We're on schedule with the schedule that was provided to us in the legislation authorizing the sale of Elk Hills. We have selected a firm that will do the independent reserve report. We have selected the investment banking firm that will structure the sale, and we're in the process of finalizing our contractual arrangements with them. And we have, as I mentioned earlier, also contracted with a firm to do the study of the other, the non-Elk Hill properties with respect to the best disposition of those other properties. And we're getting ready to, I think in the next week or so, to begin our search for the five independent experts to do what I call the hold value of the property—in other words, to determine the price of the value at which we would hold the property as opposed to divest it.

Mr. REGULA. What do you do, put this on the market and give it a price or are you taking bids, sealed bids?

Ms. GODLEY. The investment banking firm will be charged with developing a strategy, the bottom line of which would be to maximize the value of the property and to structure the sale package; whether it be in a single lot, multiple lots, or exactly how it would be structured is something that the investment bank, the expert, is going to tell us.

Mr. REGULA. I note that section 501 of Public Law 101–45 prohibits the use of funds for contracted studies of the sale of Elk Hills. I think that we changed that in the 1996 bill; however, that's not the law. So do you have a concern that is going ahead with these contracts that you're in violation of section 501?

Ms. GODLEY. I was very much concerned about that, and I asked for an opinion of our General Counsel's office with respect to the legality of spending funding on these activities mandated by the authorizing act and received a legal opinion that I would be able to do that legally and within the law.

Mr. REGULA. So they are saying that the authorizing act supersedes the language in the appropriations bill?

Ms. GODLEY. To be honest, I don't really recall the legal basis for the opinion; I just recall that I got the go ahead.

Mr. REGULA. I would have some difference of opinion with your legal counsel because I think that section 501 clearly states that no funds appropriated or made available heretofore or hereafter under this or any other act may be used by the Executive Branch to contract with organizations and so on about the sale. I think that's fairly clear.

Ms. GODLEY. I am informed, Mr. Chairman, that we supplied that legal opinion to committee staff some weeks ago.

Mr. REGULA. Well, we hope that we can get the 1996 bill signed, and you can help us a little bit and make yourselves legal.

Ms. GODLEY. I really do hope we get it signed, too. [Laughter.]

Mr. SKEEN. We're all hoping.

Mr. REGULA. CBO estimated that the sale of NPR would cost the taxpayer nearly $2.6 billion in foregone revenue. Do you agree?

Ms. GODLEY. I don't know the basis for CBO's numbers, Mr. Chairman.

Mr. REGULA. So you can't comment as to whether that's an accurate analysis or not, is that right?

Ms. GODLEY. I don't know the basis—that's right. I don't know the basis of their analysis.

Mr. REGULA. Well, I'm not sure that the sale of Elk Hills is a wise decision, but that was taken out of our hands.

Ms. GODLEY. With respect to the issue of revenues, of course it depends on a number of issues or a number of factors. The primary factor with respect to revenues is, of course, the availability of oil, how much oil is left to be produced from the field. But the second most important factor is how much money are you able to invest in developing this field and into getting that oil out and then to earn the benefit, and make wise investments of that money and really earn the benefit of that money to increase revenues.

So I think one of the issues with Elk Hills historically has been, we are a commercial field suffering under the appropriations process and unable to compete or to operate that field as a commercial and a private business would. Because of just the nature of the appropriations process and a very stringent budget scenario, I personally doubt that based on my recent experience, at least the last two years, would we be able to obtain the kind of funding to develop the field the way a private sector company would.

UNOBLIGATED CARRYOVER BALANCES

Mr. REGULA. GAO estimates that the carryover balance at the end of Fiscal Year 1996 for the fossil energy research budget will be nearly $384 million, which is more than the budget request of $329 million for Fiscal Year 1997. Why do we need to put more money into these research programs before you've spent what we've already put in?

Ms. GODLEY. I did hear that number yesterday as well; I haven't had an opportunity to look at it and evaluate it. I think we certainly are operating under a unique circumstance this year versus the last couple of years, operating in certainly an atmosphere of uncertainty with respect to ultimate funding. We've been very conservative in our expenditures because of the uncertainty with the CR, and so forth, so I really don't have a competent analysis of that situation to offer you this morning.

Mr. REGULA. Well, in the report, of course, the caption says, "DOE Needs to Improve Analysis of Carryover Balances," and I assume you will be responding to the critique that's embodied in this report.

Ms. GODLEY. Yes.

DEEP WATER DRILLING

Mr. REGULA. You mentioned earlier deep water drilling, and I recall recently *The Wall Street Journal* had an article on Shell's efforts which go probably farther out into the Gulf than has historically been the case. Do you see a future for that?

Ms. GODLEY. By all accounts, there is a good future for those efforts, the deep water efforts. These are really unexplored territories and it's another area where we are still developing the technology needed to drill in such deep waters, just the materials needed to do that to sustain underwater pressures, the types of pipe jointings, and so forth, needed to get down that far.

Mr. REGULA. Well, reading the story, it's mind-boggling just to grasp what the technology is in going out in 3,000 or more feet of water, plus, of course, having to go on down. It almost defies your imagination, the ability to do that.

GAS TO LIQUIDS TECHNOLOGY

AMOCO testified before this committee on a joint transportation membrane project that would produce low-cost hydrogen and liquid fuels from natural gas. The project is intriguing for its energy implications and because, in addition to a 50 percent cost-share, industry is willing to pay back any Federal investment when the technology is commercialized. How promising is this technology?

Ms. GODLEY. I think it's a very promising technology, the gas-to-liquids technology efforts. There are a number of different efforts ongoing.

Mr. REGULA. Now would this take natural gas and put it into a fuel that you could use in an automobile, for example?

Ms. GODLEY. Yes, that would be one potential application of it. Another would be to perhaps liquefy Alaska natural gas and move it down to the lower 48. As you know, our efforts to build a gas pipeline from Alaska have never proven economic. So there are a number of potential—although yet to be developed—applications of those technologies.

Mr. REGULA. The staff advises me that your request is not sufficient to fund this program. Is that a fair statement?

Ms. GODLEY. That's right. We have, in fact, a couple of unsolicited proposals in the gas-to-liquids area of technology development and we also have programs where we have existing cooperative agreements, with industry to develop some of these technologies. We're currently in the process of discussing these proposals with the offerors of them and determining how they fit into our program. I think the bottom line is I'd love to have enough funding to fund all of these programs in this area, but, again, in our effort to satisfy our commitment to bring down our overall R&D budget, and based on the judgments, again the balancing of needs and outcomes, this is the amount of money we felt we could commit to this program relative to our other priorities.

Mr. REGULA. What additional would be required to implement the project as envisioned by the industry cooperators in Fiscal Year 1997? Do you have any number as to what ideally would be required?

Ms. GODLEY. Three million dollars.

FUEL CELLS

Mr. REGULA. Earlier you mentioned other countries doing work on fuel cells. Are we progressing in this and is it promising technology?

Ms. GODLEY. We are progressing in it and it is promising technology.

Mr. REGULA. Fiscal Year 1996 was supposed to be the last year of funding for the five-year cost-shared co-op agreement with Westinghouse for development of a tubular solid oxide fuel cell. Why is additional funding requested for 1997?

Ms. GODLEY. I am not certain about the contractual arrangements surrounding that project and, if I may, I'd like to supply that for the record.

[The information follows:]

TUBULAR SOLID OXIDE FUEL CELLS

The five year cost-shared cooperative agreement with Westinghouse for development of a tubular solid oxide fuel cell project is addressed in the additional committee questions.

Mr. REGULA. Are most of these projects that are presently underway contractual, and if we were to not fund them, would there be liability implications on the part of the Federal Government?

Ms. GODLEY. All of our contracts include provisions that make them contingent upon availability in funding.

Mr. REGULA. So if funding were not available, are you saying there would be no liability?

Ms. GODLEY. Again, I'm not willing to express a legal opinion, but that is my understanding. I think that with respect to monetary liability or damages that would be my understanding. I think, though, that there is other liability that we need to consider as we look at our contractual obligations, both with respect to maximizing the investment that we've made to date in projects as well as committing to our partnership obligations with people. So any decision to back away from contracts, or to exercise provisions in those contracts, needs to be done in careful accordance with those contracts and with an understanding of the impact.

Mr. REGULA. Well, it would seem to me that a private sector participant would want some assurance that this was going to completion; otherwise, the money that that participant invested could be lost if the Government would suddenly determine that they're not going to continue the funding to the end of the completion of the project.

Ms. GODLEY. And that certainly is true with respect to almost every funding category that we have. Every time we reduce funding from our projected expenditures, we run that risk.

Mr. REGULA. Because we've been scaling back, as you know, and sort of getting on a glide path of reduction of monies for these programs, but I want to be sure that the contractual obligations are met.

Ms. GODLEY. We do not have liability, it is my understanding, under the contracts. We are fully in compliance with our contracts. I think, again, these are tough decisions of how do you make certain that you've given the technology that you already have some investment in an opportunity to be fully developed and deployed in whole areas of technology, as well as with particular individual contracts.

Mr. REGULA. Is the money you are requesting, will it allow you to complete the contractual obligations that you presently have?

Ms. GODLEY. That's my understanding.

Mr. REGULA. Mr. Skeen?

AGENCY OPERATIONS UNDER A CONTINUING RESOLUTION

Mr. SKEEN. Let's go back, if I might with you, and I apologize for that, without our bill being passed or your appropriations bill being passed, I'm sure you're having a very difficult time with operations.

Ms. GODLEY. It's very uncertain.

Mr. SKEEN. Because the timing is off, the personnel problems and things of that kind, where are you finding it? What kinds of problems do you have in that area?

Ms. GODLEY. It's more in the uncertainty of management and when we will be able to commit funds where we are receiving them now.

Mr. SKEEN. The programming?

Ms. GODLEY. Right, correct. And so we have some delays in committing to our funding obligations. We're trying to be very conservative.

Mr. SKEEN. Well, I think you need to circle the wagons and take care of your personnel first.

Ms. GODLEY. That's certainly an important consideration as well.

Mr. SKEEN. I would think that, noticing how the agencies work, that always you are dedicated to that prospect, because if you don't have your personnel, you don't have your operation.

Ms. GODLEY. That's correct.

SALE OF ELK HILLS NAVAL PETROLEUM RESERVE

Mr. SKEEN. You mentioned this Elk Hill situation at GAO that gives an estimate of what, $2.6 million?

Ms. GODLEY. Billion.

Mr. SKEEN. Billion. That's going to be a private sector bid operation with your agency, as I understand it.

Ms. GODLEY. Again, the strategy has yet to be developed, but it will be a competitive situation.

Mr. SKEEN. Are you getting a lot of interest from the producers?

Ms. GODLEY. Very much interest, a very high degree of interest.

Mr. SKEEN. So over a long period of time we're about to wear them out?

Ms. GODLEY. Well, since we've never had—as you know, these proposals have been tabled——

Mr. SKEEN. We've had proposals here for several years.

Ms. GODLEY. Several years.

Mr. SKEEN. With our hiccups in the appropriations cycle, it's been very difficult, I imagine.

Ms. GODLEY. It is, but this is a real premium property and one of the last remaining premium properties and I think there's going to be a lot of interest in it. One of the anomalies of this field is that we basically didn't start developing it as a commercial field until the 1970s.

Mr. SKEEN. Well, we got in a shortage position.

Ms. GODLEY. Right. So this is one of the last remaining fields that is relatively—even though it's an old field compared to other lower 48 fields—relatively undeveloped.

DEEP WATER DRILLING

Mr. SKEEN. Well, that brings me to this next question. What are we going to do for exploration for development of petroleum? And I noticed that you're talking about deep water drilling situations. Where are those sites?

Ms. GODLEY. Most of those are offshore Gulf of Mexico.

Mr. SKEEN. Off the Gulf of Mexico?

Ms. GODLEY. Right.

Mr. SKEEN. How deep?

Ms. GODLEY. I'm not a good one with numbers.

Ms. WAISLEY. Shell will very soon be in over 7,000 feet of water.

Mr. SKEEN. Seven thousand?

Ms. WAISLEY. Yes, that will be the next platform.

Mr. SKEEN. What's off the north coast of England? How deep do they go there? Do you have any idea?

Ms. WAISLEY. No, I'm sorry, I don't. Those are deeper.

Mr. SKEEN. I don't mean to—it's not a test. [Laughter.]

But I'm assuming that's a pretty deep water operation.

Ms. WAISLEY. It's pretty deep.

Mr. SKEEN. So we've got quite an experience base. What's happened to the Alaskan crude situation? We were talking about to being able to ship or sell outside of the United States area we are confined by law to do that? Have we any change in that situation?

Ms. GODLEY. The legislation has been passed that would allow the export of Alaskan crude, and I think we're finishing up the environmental impact studies that were required by the legislation.

Mr. SKEEN. Where is most of this going? To the Pacific Rim countries?

Ms. GODLEY. Yes.

Mr. SKEEN. Because I know that was the hot spot area for some time. We have a lot of interest in Alaskan crude. Are we shipping some?

Ms. GODLEY. Not yet.

Mr. SKEEN. Not yet, but at least we have the okay to do it?

Ms. GODLEY. Right.

Mr. SKEEN. Thank you very much. I appreciate it.

Ms. GODLEY. Thank you.

Mr. SKEEN. Thank you, Mr. Chairman.

REPROGRAMMING REQUEST TO STUDY SALE OF NPR

Mr. REGULA. Now just one last thing. I think it might be well to have a reprogramming on the use of the funds for the sale of the NPR, so at least we know where you're getting these suggestions and submit them to us.

Ms. GODLEY. Okay, we will.

Mr. REGULA. I'll put the balance of the questions in the record and some of our colleagues may have questions for the record.

Ms. GODLEY. Thank you.

Mr. REGULA. Thank you for coming, and especially for giving us a pragmatic budget.

Ms. GODLEY. Thank you very much. And if I might conclude by thanking you for your continued courtesy to us, as well as that of your staff, in times when that is not always necessarily the mode of operation. And that has, I think, allowed us to work together to achieve a budget that is in the best interest of the public.

Mr. REGULA. Thank you.

We'll recess until 1:30.

[The information follows:]

ADDITIONAL COMMITTEE QUESTIONS

Clean Coal Technology
Overview of Budget Request

Question: How many Clean Coal projects are currently in process and how many of those do you expect to be carried through to completion? Please explain.

Answer: There are currently 42 projects in the Clean Coal Technology Program. The current status of the projects is as follows:

	Activity	# Projects
	Pre-award	1
	Design	9
	Construction	5
	Operation	8
	Final Reporting	8
	Completed	11
Total		42

Currently 41 of the 42 projects are proceeding under the terms and conditions of Cooperative Agreements signed with the Department. One project is still the subject of negotiation with the industrial participants. While standard techniques for analyses of the performance potential of developmental projects and R&D programs have been used to confirm that some of these projects will not proceed to completion, it is not possible to identify, with certainty, which projects will not be completed. The probablistic analyses has shown, however, that the Department can expect a sufficient amount of funds to become available as a result of projects being terminated before they are fully completed to offset the funding rescission being proposed in the FY 1997 Budget Request.

Question: At what points are projects reviewed and who makes the decision on whether or not to proceed with an individual project?

Answer: Projects are continuously monitored and reviewed on an on-going basis. This on-going review is in the form of routine reporting, project meetings, design workshops, and construction reviews. Projects are formally reviewed for continuation at the end of each budget period and prior to entering the next budget period. If the Participant wishes to continue, he must submit to the Department, no later than 60 days before the end of the current budget period, a Continuation Application which contains a Project Evaluation Report, a Project Plan for the next budget period, and a detailed budget by project phase for the next budget period. Both the respective Energy Technology Center and the Office of Clean Coal Technology conduct assessments of the Continuation Application. The decision on whether or not to proceed with an individual project is made by the Assistant Secretary of Fossil Energy upon review of the Continuation Application.

Question. What criteria are used to assess each project?

Answer: A series of criteria have been developed to assess each project. These criteria are grouped into two main categories: 1) Chance of success, and 2) Commercialization potential. These criteria are used to evaluate each Participant's Continuation Application in the event there is insufficient appropriated funding available to fund all remaining projects or as criteria to be added as part of the Project Evaluation Plan for the next Budget Period.

The first category consists of two criteria: 1) The magnitude of the technical risk for future replication of the technology and the likelihood that the demonstration will reduce this risk, and 2) The financial risk of the project in completing its Statement of Work with and without further Government support. The second category consists of four criteria: 1) The size of the potential market for this technology, both domestic and international, and the degree to which this technology can achieve significant market share; 2) The benefit of future commercial potential to the U.S. in terms of jobs and exports; 3) The adequacy of the market plan to gain significant penetration into these markets; and 4) The extent to which the commercialization team possesses the experience and has committed the necessary resources to achieve significant market penetration. Documentation must be submitted to support a positive assessment of the projects potential to satisfy each of these criteria.

Question: To what extent can the government pull out of a project if it is judged to be not feasible, even if the industry cooperators may wish to proceed?

Answer: If the Participant wishes to continue the project beyond the current budget period, he must submit, no later than 60 days before the end of the current budget period, a Continuation Application which contains a Project Evaluation Report, a Project Plan for the next budget period, and a detailed budget by project phase for the next budget period.

It is at this point, that the government can pull out of a project by disapproving the Continuation Application if the criteria and conditions in the prior approved Project Evaluation Plan have not been met or appropriated funds are not available for the project. The Government cannot unilaterally pull out a project, assuming there are sufficient appropriations, if the Industrial Participant is satisfying the terms and conditions of the Cooperative Agreement.

Question: Which projects are currently awaiting decisions from the Department on proceeding to a new phase? When will those decisions be made?

Answer: Project decisions for continuation are made at the end of budget periods and not at the end of phases. The following projects have continuation decisions targeted to be made at the noted dates:

PROJECT	LIKELY TARGET DATE
1. CPICOR	5/31/96
2. CE-IGCC	5/31/96
3. Easton Diesel	6/15/96
4. York	6/30/96
5. Penelec	6/30/96
6. Clean Energy	6/30/96
7. Four Rivers	7/30/96
8. DMEC-1	7/30/96
9. Tampa	10/01/96
10. LPMEOH	10/01/96
11. Sierra	1/31/97
12. Mountaineer	10/15/98

Question: How many projects have been completed to date? What are those projects?

Answer: There are currently eleven completed projects. Completed in this context refers to projects that have submitted final reports and performed all contractual requirements. These completed projects are:

Completed Projects

1. Nucla CFB Demonstration Project
2. Tidd PFBC Demonstration Project
3. Limb Extension and Coolside Demonstration Project
4. Babcock & Wilcox's Coal Reburn on a Cyclone Boiler
5. Southern Company Service's 180-MWe Tangentially Fired Demonstration Project
6. AirPol's Gas Suspension Absorption Demonstration Project
7. SNRB Flue Gas Cleanup Demonstration Project
8. Low-NO$_x$ Cell™ Burner Demonstration Project
9. Development of the Coal Quality Expert
10. Coal Tech's Advanced Cyclone Combustor Demonstration Project
11. Passamaquoddy's Cement Kiln Flue Gas Recovery Scrubber Demonstration Project

Question: How many projects have dropped out of the program prior to completion and what projects are those?

Answer: In the period of time between the start of the Program (1985) and today, eight Clean Coal Technology Projects have been awarded negotiated Cooperative Agreements, and subsequently dropped out of the program prior to completion. These projects are as follows:

1. M.W. Kellogg Company's Appalachian IGCC Demonstration Project.
2. Ohio Ontario Clean Fuels, Inc.'s Prototype, Commercial Coal/Oil Co-Processing Plant
3. Energy International's UCG/Clean Fuels Proof-of-Concept Project (Underground Coal Gasification)
4. TRW, Inc.'s Advanced Slagging Combustor Utility Demonstration Project
5. TransAlta's Low NO_x/SO_x Burner Retrofit of Utility Cyclone Boilers Demonstration Project
6. Bethlehem Steel Corporation's Coke Oven Gas Cleaning System for Retrofit Applications
7. Tamco Power Partner's Air-blown, Pressurized Fluidized-Bed IGCC Demonstration Project
8. ThermoChem, Inc.'s Demonstration of Pulse Combustion in an Application for Steam Gasification of Coal

Question: Why do you need $17 million in 1997 for program direction in the clean coal technology program? As you have fewer and fewer projects, why aren't your administrative costs reducing more rapidly?

Answer: The $17 million request for FY97 provides for all program management support cost at Headquarters, Pittsburgh, and Morgantown related to the Clean Coal Technology Program. This funding level is distributed as: $7 million for federal salaries, benefits, and travel related to the 71 employees; $4.5 million for site support activities at Pittsburgh and Morgantown which include management information services, utilities, office space, supplies, and printing; and over $1 million is to perform activities to comply with the National Environmental Policy Act (NEPA). The remaining $4.5 million provides funds for various technical and economic analysis, financial and data analysis, technology transfer, and outreach activities.

Of the 42 active projects in the clean coal program: nine are in design, five are in construction, eight are in operation, nineteen have completed operations, and one is in negotiation. While the number of projects that have completed their operational phase is nineteen, to date only eleven projects have completed final reporting requirements under the terms of the cooperative agreements. Many of the project administrative responsibilities that have diminished or ceased for the nineteen projects that have completed operations, have been replaced with reviews of draft final reports, post project assessments, and preparation of summary and briefing documents to aid in the dissemination of results. The program direction costs are anticipated to decline more notably following completion of these post-project activities.

Question. How much of the $18 million provided for the program direction in fiscal year 1996 has been obligated to date?

Answer: As of March 31, 1996, $5,989,013 has been obligated for program direction for the Clean Coal Technology Program. It should be noted that obligations do not occur uniformly throughout the year and that obligations for several of the larger support contracts are scheduled for the second half of FY 1996. It should be noted also that consistent with the fact that the Department has been operating under a Continuing Resolution, obligations are being made only as critical needs for funding occurs

Question: What would be the impact of reducing program direction funding to $15 million in fiscal year 1997?

Answer: The impact of a $2 million reduction to program direction in FY1997 would reduce the Department's ability to conduct the technical evaluation and analysis required for project continuation applications, project restructurings, and technical evaluations. Also, the environmental analysis required to complete NEPA requirements at new project sites could be delayed.

In addition, the Department's abilities to continue an active technology transfer and outreach program would be hampered. Specifically, the number of events attended and the amount of information provided to the private sector would be significantly reduced. The completion of data collection from projects would also be delayed. The site support services at the Pittsburgh and Morgantown Energy Technology Centers would also be reduced by more than one third which would impact the Centers' ability to provide data services, maintenance, supplies, materials and printing services needed to successfully perform the Clean Coal Technology Program.

Clean Coal Technology
Project Level Information

Question: How successful have the completed clean coal projects been with respect to having the technology adopted in the marketplace?

Answer: To date, approximately $725 million in sales of Clean Coal Technologies have occurred in the domestic U.S. and international markets with approximately $1.5 billion in sales pending. These sales are primarily for the nearer-term retrofit technologies which were demonstrated for emission controls on existing units. It is premature to anticipate the start of sales of the repowering technologies. These technologies are in the early stages of being demonstrated with the Wabash River IGCC being the first project to start operations in November of 1995. Most of the repowering projects that will demonstrate the more costly, but more efficient and environmentally responsive technologies will not be completed and ready to enter the commercial market until 2000-2005. An additional $6 billion domestic, and $2 billion foreign, sales of advanced fluidized bed (AFB) systems have occurred due to technology base established by the Clean Coal and Coal R&D Programs.

Question: Please give the Committee a few examples of how this technology is being used.

Answer: Examples of the Clean Coal Technologies being used are as follows:

- Two sales of the Acid Rain Advisor computer software technology, which was developed under Combustion Engineering's Coal Quality Expert have occurred.
- One sale of the Chiyoda CT-121 advanced flue gas desulfurization process has been made in Canada.
- Foster Wheeler has made approximately $20 million in sales of the low NO_x burner, demonstrated in Southern Company Services's Wall-Fired Boiler Demonstration Project.
- Babcock & Wilcox has sold approximately 172 Low-NO_x Cell Burners for a total estimated return of $27 million.
- Pure Air has sold 1,600 MWe in scrubbing capacity of their advanced flue gas desulfurization process to Florida Power & Light Company's Manatee Power Plant at an estimated value of $200 million.

  Additionally, Pure Air has signed a 17 year contract to continue operations of the demonstration project in Chesterton, Indiana, for an estimated value of $150 million.
- Babcock & Wilcox has sold approximately 1,830 DRB-XCL burners for a total estimated value of $240 million.
- Six software control modules as demonstrated on the New York State Electric and Gas Milliken Clean Coal Demonstration Project have been sold.
- AirPol has sold their Gas Suspension Absorption System for flue gas desulfurization to the city of Hamilton, Ohio, for a value of $12.5 million

  Additionally, AirPol has had three international sales of this process and equipment, with a total estimated value of $3.3 million.

- The technology demonstrated in the Encoal, Custom Coals, and Rosebud projects have a collective total of over $1 billion in sales of their coal processing technologies for clean fuels pending through letters of intent. These pending sales are primarily international.

Question: What energy savings have been achieved as a result of clean coal technology?

Answer: It is impossible to say what the actual energy savings are due to Clean Coal Technologies. However, in the early 1980s, our best studies showed that the most we could hope to achieve in terms of coal-to-electricity efficiencies was 38% - a small increase over the power industry's average of about 33-34%. Today, technologies demonstrated in our program are already operating at efficiencies of 42-43%. This approximate 10% increase in efficiency translates to an approximate energy savings or fuel savings of 30% compared to the conventional technologies of the early 1980s. An important added benefit is that such systems emit much less CO_2 for each watt of electricity generated. If our highest efficiency goals are achieved, the energy savings would be close to 50%.

Question: What environmental benefits can be attributed to clean coal technology?

Answer: The Clean Coal Technology program has pursued a goal of reducing adverse environmental impacts through a four fold approach. Three are attained by supporting the demonstration of processes or equipment that will reduce emissions of acid gas precursors (NO_x & SO_2), reduce solid waste and/or produce value-added solids, and/or reduce emissions of greenhouse gases. The fourth is implementing a program to monitor trace emissions at Clean Coal Technology project sites.

Reduction in emissions of acid gas precursors is accomplished by supporting demonstration of environmental control devices for both the power sector and the industrial sector of the economy. These processes and/or equipment have demonstrated that emissions of SO_2 can be reduced by 40 to 98% and emissions of NO_x can be reduced by 40 to 94%. In addition, the advanced electric power generation processes supported in the Clean Coal Technology program inherently are low emitters of acid gas precursors.

Historically, SO_2 emission control devices typically resulted in conversion of air emissions to a "solid" waste that had to be disposed of in sludge ponds. The Clean Coal Technology program has demonstrated that approximately 2.7 pounds of gypsum, a usable by-product, can be produced for each pound of SO_2 removed. The gypsum is in turn used to produce wallboard. In fact, one Clean Coal Technology project is producing gypsum sufficient to construct 32,000 homes annually.

Reduction in greenhouse gas emissions is accomplished by supporting Integrated Gasification Combined Cycle projects that produce power at higher efficiencies than conventional pulverized coal electric generation technology. The supported projects can boost efficiencies into the 40 to 45% range. This increase in efficiency can reduce emissions of CO_2 by 17 to 27%. One project , yet to be demonstrated, such as gasifier /fuel cell combinations and advanced turbines, could lower CO_2 emissions by over 50%.

The DOE recognizes the importance of identifying and measuring the trace emissions from power plant stack gases. The Clean Coal Technology Program Office has implemented a program to monitor emissions at Clean Coal Technology sites. Trace emissions monitoring has been completed at ten sites. The objective was to improve the quality of trace emissions data being gathered and to monitor the response of the emission control devices being demonstrated. This data is being shared with the Electric Power Research Institute and the Environmental Protection Agency. The Environmental Protection Agency will have the benefit of actual data in carrying out their responsibilities under Title III of the Clean Air Act Amendment of 1990.

Question: What economic benefits have resulted from clean coal technology?

Answer: Over 56% of the electric power generation in the U.S. comes from utilities that use coal as a fuel source or 85% of the coal mined in the U.S. is consumed in these utilities to generate power. This is the market for the technology being generated in the Department of Energy's Clean Coal Program. The market is large and the economic impact of the technologies developed by and/or the activities in progress in the Clean Coal Program are extensive. While it would be difficult if not impossible to exactly determine the economic benefits resulting from the use of clean coal technology, the following estimates have been compiled:

- In the 2000-2010 timeframe, advanced technologies will be able to reduce emissions of nitrogen oxides and air toxics from existing powerplants by 70-90% while reducing the costs of meeting existing and future regulations by over $7.5 billion per year.

- Advanced power systems will not only be cleaner and more efficient than current systems, but will create domestic and foreign market opportunities valued at $6-10 billion a year during the 2001-2030 time period and will create a total of new jobs that range from 125,000 to 275,000 per year.

- The new and improved clean coal technology will reduce the costs of environmental compliance and the cost of new power supplies to result in lower electricity costs. These lower costs will result in a $20 billion per year boost to the general economy beginning in the 2001-2010 timeframe and extending for at least three decades. The savings also will generate approximately 170,000 new jobs.

- The advanced power generation technologies are demonstrating an increase of 10% in coal-to-electricity efficiencies over the conventional technologies of the early 1980s. This 10% increase in efficiency translates to an approximate energy or fuel savings of 30% compared to the conventional technologies of the early 1980s.

Question: What is the ratio between Federal and industry funding for the clean coal program?

Answer: The cost share ratio between Government and Industry for the Clean Coal Technology projects is 34% Government to 66% Industry. The overall cost share ratio for the program including program direction funding is 35% Government to 65% Industry.

Question: To what extent has the Federal funding contribution toward clean coal technology projects been recouped?

Answer: Most of the Clean Coal projects have not yet been completed, but recoupment has already started. To date, total repayment received by DOE has been $363,100. This figure is representative of the retrofit technologies just now entering the commercial market. Repayment will increase signficiantly as the repowering technologies become commercial.

Question: What types of technology are currently under development in the clean coal program? How do they differ from the completed projects?

Answer: The majority of the projects currently underway are developing advanced power generation technologies. This refers to integrated gasification combined-cycle (IGCC) and fluidized bed combustion (both atmospheric and pressurized). All of the IGCC and fluidized bed combustion projects are in the design or construction stage with the exception of the Wabash River Project, which became operational at the end of 1995. The other remaining projects are either in the clean fuels or industrial (steel) area. The completed projects are essentially all retrofit environmental control devices, such as low NO_x burners, advanced flue gas desulfurization (FGD) systems, and coal as well as coal/gas reburning.

Question: For the record please submit a summary of the remaining clean coal projects, the decision milestones for each of those projects and the projected completion date for each project.

Answer: There are twelve Clean Coal Technology Projects with decision milestones remaining. A brief summary of these projects, estimated next decision milestones, and completion dates are as follows:

1 - CPICOR

PROJECT: Clean Power From Integrated Coal/Ore Reduction (COREX®)

PARTICIPANT: Centerior Energy Corporation

TECHNOLOGY: Integration of Deutsche Voest-Alpine Industrieanlagenbau's COREX® iron-making process with a combined-cycle power generation system

PROJECT DESCRIPTION: COREX® is a novel iron-making technology which eliminates the need for coke production. The key innovative features of the COREX® process include the reduction shaft furnace to reduce the iron ore to iron, and the melter-gasifier that gasifies the coal and melts the iron. The gasification process generates the reducing gas for use in the reduction furnace as well as sufficient heat to melt the resulting iron in the melter-gasifier. Excess reducing gas exiting the reduction furnace is cooled, cleaned, compressed, mixed with air and nitrogen, and burned in a gas turbine generator system capable of combusting low-Btu fuel gas.

STATUS: The project was selected May 4, 1993. Negotiations towards a cooperative agreement were completed September 1994. DOE is evaluating the project for award. Project completion date is to be determined.

EST. NEXT DECISION MILESTONE: May 31, 1996

COMPLETION: To be determined

2 - CE-IGCC

PROJECT: Combustion Engineering IGCC Repowering Project

PARTICIPANT: ABB Combustion Engineering, Inc.

TECHNOLOGY: ABB Combustion Engineering's Integrated Gasification Combined-Cycle (IGCC) System

PROJECT DESCRIPTION: Demonstrate an advanced dry-feed, air-blown, two-stage, entrained-flow coal gasifier (65 MWe) with limestone injection and moving-bed zinc ferrite gas cleanup system to assess long-term reliability, maintainability, and availability for commercial applicability.

STATUS: The project completed preliminary design and economic trade off studies. The Participant is currently restructuring the project for another site and conducting project definition activities. Detail design, environmental permitting, construction and operation are activities that remain to be completed. Project completion is scheduled for March 2002.

EST. NEXT DECISION MILESTONE: May 31, 1996

COMPLETION: March 2002

3 - EASTON DIESEL

PROJECT: Coal Diesel Combined-Cycle Project

PARTICIPANT: Arthur D. Little, Inc.

TECHNOLOGY: Cooper-Bessemer's coal-fueled diesel engine combined-cycle system

PROJECT DESCRIPTION: The project is centered around two Cooper-Bessemer medium-speed (400 rpm) diesel engines (6.3 MWe each) modified to operate on coal-water fuel. The clean coal is ground and slurried with water and then injected into each of the engine's 20 cylinders. The exhaust gases from the engine pass through an integrated emission-control system capable of reducing pollutants while protecting the engine's turbocharger and maintaining high engine and overall system efficiency.

STATUS: The project is currently conducting project definition activities. Detailed design, construction, and operations remain to be completed. Project completion is scheduled for September 1998

EST. NEXT DECISION MILESTONE: June 15, 1996

COMPLETION: September 1998

4 - YORK

PROJECT: Circulating Fluidized-Bed Cogeneration Project

PARTICIPANT: York County Energy Partners, L.P.

TECHNOLOGY: Foster Wheeler Energy Corporation's Atmospheric Circulating Fluidized-Bed (ACFB) Combustor technology

PROJECT DESCRIPTION: Project demonstrates a greenfield cogeneration facility using a 250-MWe Atmospheric Circulating Fluidized-Bed (ACFB) boiler to generate 227-MWe electric power and 400,000 pounds of steam per hour for industrial use.

STATUS: The project completed preliminary design, National Environmental Policy Act process and sufficient detail design for construction readiness. The Participant has withdrawn the project from the North Codorus Township site due to their inability to obtain the land use permit and changes to their power purchase agreement. The Participant is currently investigating siting alternatives. A date for project completion is uncertain.

EST. NEXT DECISION MILESTONE: June 30, 1996

COMPLETION: To be determined

5 - PENELEC

PROJECT: Warren Station Externally Fired Combined-Cycle Demonstration Project

PARTICIPANT: Pennsylvania Electric Company

TECHNOLOGY: Hauge International's Externally Fired Combined-Cycle (EFCC) system using a novel, high temperature, ceramic gas-to-air heat exchanger.

PROJECT DESCRIPTION: An existing coal-fueled steam plant will be repowered by adding an externally fired gas turbine to form a combined-cycle system. The central features are a ceramic air heater or heat exchanger and an atmospheric combustor, which together will replace a conventional combustion system in a open-cycle gas turbine.

STATUS: The project is currently in the project definition stage. The Participant is investigating site alternatives for a restructured project. Project completion is scheduled for November 1999.

EST. NEXT DECISION MILESTONE: June 30, 1996

COMPLETION: November 1999

6 - CLEAN ENERGY

PROJECT: Clean Energy Demonstration Project

PARTICIPANT: Clean Energy Partners Limited Partnership

TECHNOLOGY: Integrated gasification combined-cycle (IGCC) using British Gas/Lurgi slagging fixed-bed gasification system coupled with Fuel Cell Engineering's 1.25-MWe Molten Carbonate Fuel Cell (MCFC).

PROJECT DESCRIPTION: Coal fines are formed into briquettes and fed to the gasifier along with screened coal. The coal and briquettes are gasified in an oxygen-blown, pressurized, slagging, fixed-bed gasifier. The raw product gas is quenched to reduce the temperature and remove tars, oils, ammonia, and particulates. The particulates and condensed tars and oils are recycled to the gasifier to ensure high cold-gas efficiency. The cooled product gas is routed to a conventional cold-gas cleanup system to remove sulfur compounds. The clean, medium-Btu gas is reheated and burned in an advanced 192-MWe gas turbine. A small slipstream of clean product gas is diverted to a gas-polishing and moisturization step and used to fuel a 2.5-MWe MCFC.

STATUS: The project is currently conducting project definition activities. Preliminary design, detailed design, environmental permitting, construction and operation are project activities that remain to be completed. Project completion is scheduled for June 2001.

EST. NEXT DECISION MILESTONE: June 30,1996

COMPLETION: June 2001

7 - FOUR RIVERS

PROJECT: Four Rivers Energy Modernization Project

PARTICIPANT: Four Rivers Energy Partners, L.P.

TECHNOLOGY: Foster Wheeler Energy Corporation's fully integrated second-generation Pressurized Circulating Fluidized-Bed System (PCFB) Combined Cycle Cogeneration

PROJECT DESCRIPTION: Coal is fed to a pressurized carbonizer that produces a low-Btu fuel gas and char. After the fuel gas is cleaned of particulates and alkali vapors by a cyclone, ceramic filter, and alkali removal system, it is burned in a topping combustor to drive a gas turbine. The gas turbine drives a generator and a compressor that delivers air to the carbonizer and to a PCFB combustor. Additional coal and the carbonizer char are burned in the PCFB combustor, and the flue gas is used to combust the fuel gas in the topping combustor.

STATUS: Project definition and preliminary design are currently being conducted. The Participant is preparing a proposal to restructure and relocate the project. Detailed design, environmental permitting, construction, and plant operations are the activities that remain to be completed. Project completion is scheduled for September 2001.

EST. NEXT DECISION MILESTONE: July 30, 1996

COMPLETION: September 2001

8 - DMEC-1

PROJECT: Pressurized Circulating Fluidized Bed Demonstration Project

PARTICIPANT: DMEC-1 Limited Partnership (a partnership between Dairyland Power Cooperative and Midwest Power Systems, Inc. [previously Iowa Power, Inc.])

TECHNOLOGY: Ahlstrom Pyropower Corporation's PYROFLOW pressurized circulating fluidized-bed combustion (PCFB) combined-cycle system (advanced electric power generation/fluidized-bed combustion)

PROJECT DESCRIPTION:	Project demonstrates PCFB at 80 MWe, to evaluate environmental, cost, and plant performance in a commercial-scale greenfield application.
STATUS:	Preliminary design and economic trade off studies have been completed for the project. The Participant is preparing a proposal to restructure and relocate the project. Detail design, environmental permitting, construction, and plant operations are the activities that remain to be completed. Project completion is scheduled for March 2001.
EST. NEXT DECISION MILESTONE:	July 30, 1996
COMPLETION:	March 2001

9 - TAMPA

PROJECT:	Tampa Electric Integrated Gasification Combined-Cycle Project
PARTICIPANT:	Tampa Electric Company
TECHNOLOGY:	Oxygen-Blown/Integrated Gasification Combined-Cycle system (IGCC)
PROJECT DESCRIPTION:	Project demonstrates the integrated performance of a 260-MWe pressurized oxygen-blown, entrained-flow coal gasifier island, coupled with a combustion and steam turbine power island. The project is part of a larger Tampa Electric generation expansion project.
STATUS:	The project is currently in construction. Construction is approximately 70% complete with operations scheduled to commence in late 1996. Project completion is scheduled for October 1998.
EST. NEXT DECISION MILESTONE:	October 1, 1996
COMPLETION.	October 1998

10 - LPMEOH

PROJECT: Commercial-Scale Demonstration of the Liquid-Phase Methanol (LPMEOH™) Process

PARTICIPANT: Air Products and Chemicals, Inc.

TECHNOLOGY: Air Products' liquid-phase methanol (LPMEOH™)

PROJECT DESCRIPTION: Project demonstrates, on a commercial scale (nominal 260 ton/day), the production of methanol and coproduction of methanol and dimethyl ether from coal-derived synthesis gas as an alternative fuel for boiler, turbine, and transportation applications.

STATUS: The project is currently in construction. Operations are scheduled to commence in December 1996. Final reporting and project completion are scheduled for December 2001.

EST. NEXT DECISION MILESTONE: October 1, 1996

COMPLETION: December 2001

11 - SIERRA

PROJECT: Piñon Pine IGCC Power Project

PARTICIPANT: Sierra Pacific Power Company (SPPC)

TECHNOLOGY: KRW air-blown, fluidized-bed gasifier.

PROJECT DESCRIPTION: Demonstrate the operation of an 120-MWe Integrated Gasification Combined Cycle (IGCC) plant incorporating hot-gas cleanup using the KRW fluidized-bed gasifier.

STATUS: The project is currently in the construction phase. Construction is approximately 60% complete with operations scheduled to commence in late 1996. Project completion is scheduled for July 2000.

EST. NEXT DECISION MILESTONE:	January 31, 1997
COMPLETION:	July 2000

12 - MOUNTAINEER

PROJECT:	PFBC Utility Demonstration Project
PARTICIPANT:	The Appalachian Power Company
TECHNOLOGY:	ABB Carbon AB and Babcock & Wilcox (B&W) Bubbling Pressurized Fluidized-Bed Combustion (PFBC) system
PROJECT DESCRIPTION:	Project demonstrates a 330-MWe Pressurized Fluidized-Bed Combustion (PFBC) Combustor/Gas Turbine Module.
STATUS:	Preliminary design and economic trade off studies have been completed for the project. DOE recently granted approval to the Participant to pursue plans to restructure and relocate the project. Detail design, environmental permitting, construction, and plant operations are the activities that remain to be completed. Project completion is scheduled for May 2004.
EST. NEXT DECISION MILESTONE:	October 16, 1998
COMPLETION:	May 2004

Fossil Energy Research and Development
Overview of Budget Request

Question: If the Committee were to recommend restoring some of the reductions to the coal research budget, what would be your top five priorities and what would each of them cost.

Answer: The FY 1997 budget request for Fossil Energy R&D is an appropriate level of funding for the important priority activities to advance development and utilization of our nation's fossil fuel resources and technologies to assure an ample, secure, clean and low cost domestic supply of energy. The Department believes that the FY 1997 request for all of its R&D programs is proper and balanced in light of fiscal budget constraints.

The Department continues to support its FY 1997 budget request, calling for contractor down-selections and reduced activity in a number of areas. The Department believes that the FY 1997 funding for the following programs is sufficient. However, if additional funding is appropriated, the following lists additional costs of coal R&D programs/projects which would either avoid down-selections or avoid reduced activity:

		($ Millions)
1.	Wilsonville PSDF (Combined PFB/IGCC budgets)	$3.3
2.	Advanced Turbine System	$23.0
3.	Advanced PC Powerplant (LEBS)	$4.0
4.	IGCC (Novel Fluid Bed Desulfurizer/ Syngas Generator PDU)	$1.8
5.	Advanced Research & Energy Technology (Clean Fuels) (includes Consortium for Fossil Fuel Liquefaction Science and other advanced research)	$2.7

Coal Research
Direct Liquefaction

Question: How do you justify an increase of $827,000 for laboratory research on innovative process concepts for direct liquefaction? (budget p. 32)

Answer: This change is largely a reallocation of resources between key activities. The budget request for the key activities for bench scale research on advanced liquefaction processes and laboratory research on innovative process concepts for FY 1997 is $3.8 million as compared to $3.5 million in FY 1996. Laboratory research on innovative processes has been increased to obtain data on improved direct liquefaction concepts which offer the potential for coal-derived liquid fuels that could compete with crude at $27 per barrel. The FY 1997 budget request is considered appropriate based on the projection of when stand-alone direct liquefaction technology would be required as an option to supplement the Nation's transportation fuel supply.

Question: How would you restructure the program if you were held to the fiscal year 1996 level of $2,000,000?

Answer: Laboratory innovative process concepts activity would have to be stretched- out delaying advancement in direct liquefaction technology. Efforts on development of an advanced direct liquefaction industrial project would be slowed, as would level of research and technical support at PETC and Sandia National Laboratory which provide technical underpinning for advanced concepts.

Advanced Research and Environmental Technology
Consortium for Fossil Fuel Liquefaction Science

Question: Describe the work of the Consortium for Fossil Fuel Liquefaction Science (coprocessing of coal and urban wastes)..

Answer: The Consortium for Fossil Fuel Liquefaction Science (CFFLS) is a research organization of about 100 faculty scientists, engineers, graduate/post-graduate students and laboratory technicians from five universities - the University of Kentucky, the University of Pittsburgh, the University of Utah, West Virginia University, and Auburn University. It was formed in 1985 with the objective of coordinating the activities of some of the nation's outstanding coal research laboratories to provide a focused thrust, in a single research effort, to develop new and innovative methods of converting coal to liquid fuels.

As a result of the success of this early research, since 1993 CFFLS has been focusing on developing technologies that have the potential of recovering/recycling the energy and chemical value from the huge amounts of solid waste that are generated in the United States every year and disposed of in landfills. As an example, they have been developing methods of converting municipal waste (such as mixed plastics, used tires, and waste lubricating oil), and coal, heavy oils and resid, into high quality crude oil using direct coal liquefaction technology. Recent promising results have included:

- Converting nearly 100 percent of waste plastic into high-value crude oil by direct liquefaction.
- Completely converting used tires into (65 percent) oil and (35 percent) carbon black, another high value product.
- Demonstrating that waste automotive oil, grease, and petroleum resid can not only also be added to the municipal waste and coal, but they serve as excellent solvents for the conversion process and also become part of the clean oil product.

Question: This appears to be an exciting idea which solves the urban waste disposal problem and generates a clean energy fuel at the same time. Don't you agree?

Answer. While far from solving our nation's urban waste disposal problem, we are encouraged by the progress of the research on coprocessing municipal wastes with coal.

Question: No funds are included to continue this project in fiscal year 1997. What would it cost to continue this work in 1997?

Answer: $1.7 million of DOE funding would continue the FY 1996 program through FY 1997.

Advanced Pulverized Coal-Fired Powerplant
Low Emission Boiler Systems

Question: You have requested $5,340,000 for LEBS in 1997 as compared with $9,504,000 in 1996. Why such a large decrease? (budget p. 39)

Answer: We are proposing to downselect to one contractor at the end of FY 1996 (at the end of Phase II), instead of proceeding with three contractors through Phase III (plant design). The early downselection reduced FY 1997 funding needs by $3 million.

Question: With whom are you contracting for LEBS work in fiscal year 1996?

Answer: LEBS contractors in FY 1996 are ABB Combustion Engineering, Babcock & Wilcox, and DB Riley.

Question: What are your plans for downselecting to a single contractor?

Answer: The plan is to downselect to one contractor at the end of FY 1996 (at the end of Phase II).

Question: What additional funding would be needed to continue LEBS on schedule through completion of Phase III and initiation of Phase IV in fiscal year 1997?

Answer: To continue LEBS on schedule with Phase IV initiation in FY 1997 would require additional funding of $3 million - $5 million, depending on the contractor selected for Phase IV.

High Efficiency Integrated Gasification Combined Cycle
Wilsonville

Question: What is the impact of reducing IGCC funding at Wilsonville? ($12M in 1996 and $10M in 1997)

Answer: Funding for the Wilsonville Power Systems Development Facility is provided from High Efficiency IGCC and High Efficiency PFBC appropriations. In FY 1996 the combined total was $24M and the FY 1997 request is $22M ($10M IGCC and $12M PFBC). The $10M requested for IGCC is sufficient to maintain the IGCC schedule (initiate testing of the transport reactor). However, there would be a schedule slip of up to 4 months in initiating shakedown and operation of the PFBC.

Question: What would it cost to continue this program on schedule in fiscal year 1997? (budget p. 40)

Answer: The Wilsonville PSDF requires a combined total of $25.3M to maintain the High Efficiency IGCC and High Efficiency PFBC program schedules. The combined request in FY 1997 for the Wilsonville PSDF is $22M ($10M IGCC and $12M PFBC). The $10M requested for IGCC is sufficient to maintain its schedule, but an additional $3.3M is needed to maintain the schedule for PFBC.

Question: How do you justify an increase of more than 100% for sorbents research (budget p. 41) when coal research as a whole is declining by 15%? ($1,565,000 in 1996 and $3,689,000 in 1997)

Answer: During FY 1996, plans are being developed for activities at Wilsonville, Wabash, and Tampa Electric Power locations for testing in FY 1997. The increase of funding request in FY 1997 is mainly due to the cost of installation of samples and monitoring the actual performance in the slip stream environment. Promising hot gas cleanup filter materials, improved components, or subsystems will be evaluated in existing or demonstration facilities. The rest of the increase is due to the development of sorbents for the new transport reactor and fluid bed desulfurization concepts to capitalize on the advantages of these improved hot gas desulfurization processes.

Advanced Research and Environmental Technology
B&W Air Toxics Facility

Question: What is the status of the B&W air toxics facility in Alliance, Ohio? (budget p. 45)

Answer: The basic facility has been completed along with baseline measurement of the effectiveness of conventional pollution control equipment (baghouses, electrostatic precipitators and scrubbers) in removing air toxics and other emissions. Optimization of sampling and measurement techniques and equipment is currently underway along with evaluation of how conventional technologies could be modified to improve air toxics removal efficiency.

Question: The funding for the B&W project is $1.8 million in fiscal year 1996; what amount is included in the fiscal year 1997 budget request? Please explain any change in funding.

Answer: No funds were requested in the FY 1997 budget request for the B&W air toxics facility. The $1.8 million appropriated for FY 1996 completes DOE's funding obligations for this project

Advanced Research and Technology Development

Question: Please provide a list, by location, comparing materials research projects being funded in fiscal year 1996 ($6,863,000) and assumed to be funded in 1997 at the reduced level of $5,217,000.

Answer: The Advanced Research and Technology Development Materials Program development projects are grouped into three areas - Structural Ceramics, Functional Materials, and Structural Alloys.

Structural Ceramics: High temperature corrosion resistant ceramic composites for more efficient, environmentally clean and lower cost power systems. Potential applications include high temperature furnaces/combustion systems and other component hardware.

($ in thousands)

Contractor	Location	FY 1996	FY 1997
Advanced Products Development	Bristol, PA	PYF[1]	$0
Argonne National Laboratory	Argonne, IL	405	300
Boston University	Boston, MA	100	0
Georgia Institute of Technology	Atlanta, GA	160	120
Idaho National Engineering Laboratory	Idaho Falls, ID	50	0
Lawrence Berkeley Laboratory	Berkeley, CA	75	0
National Institute of Standards and Technology	Gaithersburg, MD	PYF	0

Contractor	Location	FY 1996	FY 1997
Oak Ridge National Laboratory	Oak Ridge, TN	739 [2]	768
Pennsylvania State University	State College, PA	172	0
Sandia National Laboratories	Albuquerque, NM	75	0
University of North Dakota	Grand Forks, ND	50	50
University of Tennessee	Knoxville, TN	50	0
Virginia Polytechnic Institute	Blacksburg, VA	135	100
Subtotal		$2,011	$1,338

Functional Materials: These are materials that perform a process function rather than being a structural member. They have broad applications to advanced power and fuel conversion systems/subsystems. The developments include high temperature particulate filters; porous ceramic membranes for separating gases and liquids; solid electrolyte materials for fuel cell power production, gas separation, oxygen and hydrogen production, and electrochemical reactors; carbon molecular sieves for air separation, gas stream separations/cleanup; and catalyst support materials to improve reactivity and selectivity of catalysts for cleaner and lower cost coal to liquid fuel conversion systems.

($ in thousands)

Contractor	Location	FY 1996	FY 1997
3M Company	St. Paul, MN	PYF	$0
Alcoa Aluminum Company	Pittsburgh, PA	PYF	0
Amoco Performance Products, Inc.	Alpharetta, GA	PYF	0
Fiber Materials, Inc.	Biddeford, ME	PYF	0
Koppers Industries, Inc.	Pittsburgh, PA	PYF	0

Contractor	Location	FY 1996	FY 1997
Mallett Technology	Research Triangle Park, NC	PYF	0
Oak Ridge K-25 Site	Oak Ridge, TN	480	490
Oak Ridge National Laboratory	Oak Ridge, TN	605 [2]	415
Pacific Northwest National Laboratory	Richland, WA	655	450
Pennsylvania State University	State College, PA	PYF	0
Sandia National Laboratories	Albuquerque, PA	50	0
UCAR Carbon Company	Parma, OH	PYF	0
University of Kentucky	Lexington, KY	75	0
University of Tennessee	Knoxville, TN	PYF	0
West Virginia University	Morgantown, WV	PYF	0
Subtotal		$1,865	$1,355

Structural Alloys. High temperature advanced fossil power and fuel conversion systems. Developments include advanced austenitic alloys, iron aluminides and other intermetallic alloys, and research on corrosion resistant structural materials, coatings, and claddings. Potential applications include steam boilers, pressure vessels, piping systems, valves, heat exchangers, filters, burners, etc.

($ in thousands)

Contractor	Location	FY 1996	FY 1997
Argonne National Laboratory	Argonne, IL	$135	$100
Colorado School of Mines	Golden, CO	75	75

Contractor	Location	FY 1996	FY 1997
Foster Wheeler Development Corporation	Livingston, NJ	100	100
Idaho National Engineering Laboratory	Idaho Falls, ID	175	175
Lehigh University	Bethlehem, PA	30	0
Oak Ridge National Laboratory	Oak Ridge, TN	1,781 [2]	1,656
Ohio State University	Columbus, OH	120	0
Pacific Northwest National Laboratory	Richland, WA	180	150
PM Hochtemperatur-Metall. GmbH	Reutte, Austria	PYF	0
Rensselaer Polytechnic Institute	Troy, NY	60	75
University of Tennessee	Knoxville, TN	70	35
West Virginia University	Morgantown, WV	68	0
Subtotal		$2,794	$2,366
Subtotal - Structural Ceramics		$2,011	$1,338
Subtotal - Functional Materials		$1,865	$1,355
Subtotal - Structural Alloys		$2,794	$2,366
Totals		$6,670	$5,059
DOE-ORO	Oak Ridge, TN	3	3

Contractor	**FY 1996**	**FY 1997**
SBIR	140	105
DOE-HQ	50	50
Grand Totals	$6,863	$5,217

1. PYF means prior year funding. For those contractors indicated, sufficient funds were available from prior years to extend the contracts through FY 1996. That is, contract periods do not necessarily coincide with the FY period of October through September. For example, a contract period might extend from November of one fiscal year through October of the succeeding fiscal year. A "$0" in the FY 1997 indicates that the work will have to be terminated due to lack of funds.

2. Includes purchases of equipment, materials and supplies.

Climate Change Action Plan

Question: What is the Climate Change Action Plan?

Answer: The Climate Change Action Plan is the Administration's plan to reduce domestic greenhouse gas emissions. Proposed in October 1993, the plan is comprehesive, targeting all greenhouse gases and all sectors of the economy. It responds to the potential threat of global climate change and helps guide the U.S. economy toward environmental- ly sound economic growth into the 21st century.

Question: What other parts of the Department and other Federal agencies provide funding for the plan?

Answer: The Office of Energy Efficiency and Renewable Energy (EE) in DOE as well as the Environmental Protection Agency, the U.S. Department of Agriculture, and the Army Corp of Engineers provide funding for the plan.

Question: How many projects do you have in the Fossil budget in support of the Climate Change Action Plan?

Answer: Fossil Energy is responsible for only 2 of the 50 initiatives under the Climate Change Action Plan. These are titled "Commercialize High Efficiency Gas Technologies" which involves fuel cells and "Expand RD&D for Methane Recovery from Coal Mining", which addresses the capture of coal mine methane. Currently, no specific projects have been funded under these initiatives.

Question: Please provide a list in budget activity and subactivity order for the record which briefly describes each of these projects, funding levels for fiscal years 1996 and 1997, and outyear cost estimates by year.

Answer: For the fuel cell initiative in 1996, DOE requested $8 million for the testing of advanced fuel cells under the Climate Change Action Plan (CCAP). The House and Senate markups include $0 for the CCAP,and increase molten carbonate fuel cells by $8 million. In addition, in FY 1996, Congress appropriated $15 million in grants as partial assistance for fuel cell purchasers. The funding was appropriated to the Department of Defense, which under Congressional guidance, has provided it to DOE to administer. (This is not under the CCAP.)

For the coal mine methane initiative, no funding was provided in FY 1996. $1 million is requested for FY 1997. We have no estimates for the outyears.

Natural Gas Research
Advanced Turbine Systems

Question: How does your turbine program differ from the turbine program in the energy conservation program?

Answer. Both the Energy Conservation (CE) Turbine Program and the Fossil Energy (FE) Turbine Program are jointly coordinated under the Advanced Turbine Systems (ATS) Program. FE funds utility system development and demonstration, whereas CE funds industrial systems development. FE funds General Electric, ABB, and Westinghouse, all of whom are manufacturers of large-size utility-type gas turbines ranging up to in excess of 200 Mwe of electrical output. CE is funding Allison and Solar manufacturers of turbines, which are 20 Mwe or less in output. Because of the power size, technologies of the industrial gas turbine and the utility gas turbine are quite different. Both FE and CE are jointly participating in the technology-base development element of the ATS Program. METC provides contract administration for both the utility and industrial contracts.

Question: Why is this program important?

Answer: The goal of the ATS Program is to provide environmentally superior, highly efficient, and cost-effective electric power generation technology to the U.S. consumer, while promoting U.S. economic competitiveness and job creation.

The United States is the world leader in gas turbine technology. U.S. turbine manufacturers currently hold a greater than 60 percent global market share. Annually, we export more than $3 billion worth of gas turbine equipment and services. This volume of exports has a tremendous impact on the U.S. economy. Upwards of 60,000 high-wage U.S. jobs are supported by the gas turbine industry. (U.S. Department of Commerce estimates $1 billion of exports = 20,000 U.S. jobs.)

The gas turbine business is extremely competitive. Turbine costs have fallen dramatically--from $1,000/kw for combined-cycle systems a few years ago to less than $400/kw today. Foreign suppliers, often with active support of the governments, are aggressively going after market share. Foreign governments provide subsidies, as well as maintaining competing development programs such as the European community-sponsored program Turbo AG.

The United States must maintain its technological superiority in gas turbines if it is to retain and expand its global market share. Recent cutbacks in defense-related jet engine research have slowed the flow of innovations into industrial gas turbines. Because U.S. manufacturers have integrated the ATS effort into their new product introduction plans, they will be able to maintain their global leadership position.

Without the ATS Program, the United States would sacrifice U.S. technology leadership and, with it, the export markets for U.S.-manufactured products. Eventually, domestic demand would be met by more non-U.S. firms. The ATS investment enables the U.S. Government to contractually require that the engineering and manufacturing infrastructure to produce ATS be maintained in the United States. This requirement preserves high-technology jobs in the United States.

Other benefits of ATS include:

- ATS is accelerating the introduction into the United States of power generation technology that complies with increasingly stringent environmental standards, while reducing the cost of electricity. The recently announced General Electric "H" machine is the product of the ATS Program. Westinghouse is currently marketing their "G" machine, which benefited from the ATS Program and will soon announce their version of an ATS machine. Prototypes of these machines will be demonstrated in the 1998 to 2000 time frame.

- ATS systems will provide new markets for natural gas and lead to increased use of natural gas for electric power and for industrial uses.

- ATS has the potential to capture global markets using alternative fuels. Thus, the efficiency benefits of the ATS also apply to coal and biomass fuels. ATS machines combined with fuel cells have the potential to double efficiency over today's conventional systems. This reduces CO_2 emissions by one half.

Question: Why is your request for funding for the turbine program decreasing in fiscal year 1997?

Answer: The request was in compliance with the need to reduce spending in light of strict budget constraints.

Question: How many contractors are currently participating in the program, who are they, and at what stage of development are the individual projects?

Answer: Fossil Energy supports both General Electric and Westinghouse who are in the technology readiness testing phase or Phase III. ABB is in Phase II, the conceptual design phase. The South Carolina Energy Research and Development Center continues to monitor and administrator the university contracts, and the Oak Ridge National Laboratory is conducting materials work for the tech-base development.

Question: When will you downselect to a single contractor?

Answer: The funding request is based on an early downselection to a single principal contractor by the end of FY 1996.

Question: What would be the consequences of downselecting now?

Answer: Immediate downselection or downselection by the end of FY 1996 would force a DOE decision before all key development information is available. This would increase the risk of not attaining the Advanced Turbine program goals. The losing company would also most likely seek financial support to continue development.

Question: What additional funding would be required to fund two full-scale contractors in fiscal year 1997?

Answer: $23 million in additional funding would be required in FY 1997 to continue the two current contractors through Phase III of the program.

Question. What are the historical and projected costs by year for this program?

Answer:

FE Costs in Millions

	FY 92	FY 93	FY 94	FY95	FY 96	FY 97	FY 98	FY 99	FY 2000
Projected	0.7	9.8	23.7	47.2	52.5	52.5	54.7	34.9	29.6
Historical	0.75	9.8	20.7	37.0	36.8	31.6	---	---	---

Question: If you were to downselect to a single contractor, how would that year by year funding profile change?

Answer: Costs shown assume a continuing supporting research and development program and will vary depending on which contractor is selected.

FY 1997	FY 1998	FY 1999	FY 2000
31.6	45 0	25.0	16.0

Question: What were your projections of costs by year in your original plan for the turbine program? Please provide year by year comparisons for the record.

Answer:

FE Costs in Millions

	FY 92	FY 93	FY 94	FY95	FY 96	FY 97	FY 98	FY 99	FY 2000
Projected	0 7	9.8	23.7	47.2	52.5	52.5	54.7	34.9	29.6
Historical	0.75	9.8	20.7	37.0	36.8	31.6	---	---	---

Dow Corning and GRI

Question: Please describe the natural gas utilization project you are conducting with Dow Corning and the Gas Research Institute.

Answer: This is a gas-to-liquids project to produce methyl chloride through the oxyhydrochlorination of methane. Methyl chloride is a key building block for the production of liquid fuels and chemicals from natural gas.

Question. What do you hope to achieve through this joint effort?

Answer: The objective of this basic research effort is to develop the oxyhydrochlorination process in an integrated operation and to determine the process economics.

Question: What funds are included in the budget request for this project? (budget p. 63)

Answer: The FY 1997 budget request includes $900,000 for this project.

Question: What additional funds, if any, would be required to fully fund this project in fiscal year 1997?

Answer: An additional $900,000 would be required to fully fund their proposal in FY 1997.

International Center for Information on Natural Gas

Question: What is the International Center for Information on Natural Gas?

Answer: The International Center for Gas Technology Information (ICGTI) is the natural gas technology information center of the International Energy Agency (IEA). The IEA, founded in 1974, is the energy forum for 23 industrialized countries and assists member countries to set up collaborative projects for research, development, and demonstrations of energy-related technologies. The current ICGTI membership includes the governments of Canada, Denmark, Japan, Portugal, Russia, Spain and the United States, and one corporate sponsor Columbia Gas System of the United States.

The International Center for Gas Technology Information was established as a permanent IEA program with the signing of an Implementing Agreement on April 4, 1995. The charter signers of the agreement establishing the Center represent more than 50 percent of the 74.5 trillion cubic feet (Tcf) of the world's natural gas production and consumption. The worldwide consumption of natural gas is projected to increase by 47 percent between 1990 and 2010 while the projected increase in overall energy demand is only 36 percent for the same time period. Gas Technology Information, Inc., located in Washington, D.C. and the Danish Gas Technology Center, located in Horsholmn, Denmark, operate ICGTI on behalf of its members and IEA.

The primary mission of the ICGTI is to increase the rate of technological innovation and commercialization of gas-related technologies for the global gas industry by providing an international forum for natural gas technology information exchange and collaboration. The central focus of the ICGTI's mission is developing the "GTI On-Line", a gas technology information exchange system using the World Wide Web (WWW) on the Internet. The "GTI On-Line" system is a Internet-based electronic information exchange system available to the global energy industry. The "GTI On-line" provides access to technology information exchange, technology analysis, and technology transfer on natural gas exploration and production, transmission, natural gas storage, distribution, residential, and commercial end-use technologies. In addition, natural gas vehicles and environmental technologies are also featured.

Question. Why do you need $320,000 to support this center in fiscal year 1997?

Answer: As a participating IEA country, the United States made a formal commitment to the formation, development, and funding of a permanent IEA, International Center for Gas Technology Information program. The ICGTI is funded by its membership based on a formula calculated as a function of their gas production and consumption and adjusted for their Gross Domestic Product (GDP), with a maximum country contribution of 22.5 percent. The United States annual contribution is 22.5 percent of the ICGTI's program budget. The 1997 ICGTI budget is $1,500,000, a significant reduction from the original 1990 budget proposal of $5,000,000. The 1990 ICGTI budget proposal included a U.S. contribution of $875,000. Also approximately 50 percent of the annual program budget is spent in the U.S. Therefore in contrast to most U.S. participation in international activities, for every dollar the U.S. contributes to ICGTI, over two dollars is spent in the U.S. to place U.S. gas technology in the "GTI On-Line" database.

Question: What other sources of funds support the center?

Answer: The ICGTI member countries - Canada, Denmark, Japan, Portugal, Russia, Spain, and the United States contribute funds based on a formula calculated as a function of their gas production and consumption and adjusted for their Gross Domestic Product (GDP). The 1997 estimated contribution amounts and their estimated percent of total budget are the following: Canada $150,000 (10%), Denmark $44,852 (3.06%), Japan $300,000 (20.40%), Portugal $7,432 (0.51%), Russia $168,750 (11.25%), Spain $44,852 (3.06%), United States $337,500 (22.50%). Columbia Gas Systems, a corporate sponsor of the Center, $12,500 and the Danish gas company, DANGAS and the Gas Research Institute (GRI) in-kind contributions of $209,000. The Center anticipates that it will generate $226,000 in new country members and new corporate sponsors in 1997.

Questions: Why is the Federal Government involved in this effort?

Answer: The primary mission of the ICGTI is to increase the rate of technological innovation and commercialization of gas-related technologies for the global gas industry by providing an international forum for natural gas technology information exchange and collaboration. The goal of the Department is to increase U.S. industry exports of natural gas technologies to compete in the global gas marketplace.

Fuel Cells

Question: Last year you proposed to coordinate market entry efforts for fuel cells with the Defense Department and to accelerate demonstrations of advanced fuel cells. To what extent have you proceeded with that project and how is it being funded?

Answer: In April of this year, the Department of Energy, in coordination with the Department of Defense, announced a program offering commercial assistance to buyers of early versions of market-ready fuel cells. Under this program, rebates of up to $1000 per kilowatt, or up to 1/3 of the total project cost, will be provided. The first round of awards will be made by September 30, 1996. This effort is funded by $15 million in FY 95 and $12 million in FY 96 appropriations provided to the Department of Defense with Congressional guidance that the program be administered through the DOE Morgantown Energy Technology Center.

DOE also requested funding of $8 million in FY 96 to accelerate demonstrations of advanced fuel cells. This funding was not appropriated. However, funding of molten carbonate system/stack improvement efforts was increased above the DOE request by $8 million. Two field tests of integrated molten carbonate power plants are scheduled to begin operation this fiscal year and the further improvement and cost reduction leading to market readiness is proceeding at a faster pace compared to what would have been possible at the requested level.

Molten Carbonate Fuel Cells

Question: At what stage is the molten carbonate fuel cell program and how long will it be before the technology is commercially available?

Answer: The molten carbonate fuel cell program is currently in the full scale development stage which includes integrated systems being built for field testing this year. Also included is a product improvement and cost reduction effort by the vendors to position the technology for market readiness and availability by the year 2000.

Question: What types of applications are these fuel cells designed for?

Answer: These fuel cells are designed for applications in stationary power production ranging from hundreds of kilowatt size for on-site and cogeneration applications (multi-unit residential, office, commercial and industrial) to the low multi-megawatt scale for distributed power generation applications. The high operational reliability of these systems could also provide service to premium power markets that depend on continuous high quality electricity and high reliability.

Question: What advantages will molten carbonate fuel cells provide over traditional technology?

Answer: Molten carbonate fuel cells have distinct features of quiet, ultra-clean operations that can be easily sited. Its modular features allow for flexibility in a multitude of sizes to meet the customer demands and applications. At any size fuel cells also retain their system efficiency since their efficiency is relatively independent of size.

Question: How many major contractors participate in the molten carbonate fuel cell program, who are they, and when will you down select to a single contractor?

Answer: There are two major molten carbonate fuel cell contract teams headed by, Energy Research Corporation of Danbury, Connecticut, and M-C Power Corporation of Burr Ridge, Illinois. There is also one major contractor (Westinghouse Electric Corp. of Pittsburgh, Pennsylvania) developing solid oxide fuel cell technology.

The Department's downselection strategy is to evaluate the three efforts near the end of FY 1997 following the availability of results from the major field tests involving each of these technologies. The most likely result of this downselection strategy is anticipated to be that two fuel cell leaders would continue full system development at a pace to enable market readiness by 2000, while a third contractor team would conduct only stack and critical component development. This third contractor would provide critical components which reduce risk, enable improved performance, reduce costs and broaden applications.

Question: What would be the consequences of downselecting to a single contractor now?

Answer: Since it is technically premature to identify leaders and laggers, downselecting at this time would run the risk of abandoning favorable technologies. The consequence would be the danger of losing technology entirely or possibly have it sold to international competitors for completion of development and subsequent import to the U.S. market.

Question: The participants in this program have reported to the Committee that the decreased funding in your request ($36,454,000 in 1996 and $31,580,000 in 1997) is insufficient to continue a viable program in 1997. What additional amount would be necessary to keep these contractors on track in 1997?

Answer: Our best estimate is that $40 million would be required in FY 1997 to maintain these two development efforts on their current schedules.

Tubular Solid Oxide Fuel Cells

Question: Fiscal year 1996 was supposed to be the last year of funding for the 5-year cost-shared cooperative agreement with Westinghouse for development of a tubular solid oxide fuel cell. Why is funding requested to continue this proejct in fiscal year 1997?

Answer: The FY 1996 funding completed the 5-year, system scale-up phase and will culminate in the field test of a 100 kilowatt unit by the private sector. The funding requested in FY 1997 is to begin a four year cost-shared Phase 2 effort building on the field test and is aimed at product improvement and cost reduction necessary to reach market readiness. The scale-up phase of work being completed in FY 1996 is intended to verify technical performance goals. Now it must be made cost competitive so that a market entry level of technology development is realized.

Question. Please describe this technology and explain how it differs from molten carbonate fuel cells.

Answer: This solid oxide fuel cell technology utilizes tubular cells grouped together in fuel cell "bundles" while the molten carbonate technology utilizes flat cells arranged in fuel cell "stacks". The solid oxide fuel cell utilizes an all solid state, ceramic technology with a cell operating temperature of approximately 1800 F, while molten carbonate fuel cells utilize an electrolyte which is liquid at the cell operating temperatures of about 1200 F

Question: At what stage of development is this technology as compared with molten carbonate fuel cells?

Answer: The solid oxide and the two molten carbonate fuel cell technologies are all in the system scale-up phase. However, the two carbonate systems are both scheduled to start field tests of market scale hardware this year while a similar scale solid oxide field test is scheduled to begin in the second quarter of FY 1997.

Question: How soon do you estimate that this technology will be commercially available and what advantages will it provide as compared with other fuel cell technology?

Answer: This solid oxide technology is expected to be commercially available at the completion of a four year cost reduction and improvement phase at the end of 2000.

This solid oxide fuel cell technology is expected to provide economic and environmental advantages through use in combined fuel cell/gas turbine systems with very high efficiencies and very low emissions for use in some distributed generation and some central power applications. If development is successfully completed, the technology offers prospects of economic advantages due to longer cell life, high reliability with low maintenance, and extension of benefits of fuel cells to new applications. It is expected that each of the fuel cell technologies will provide advantages in one or more of the various market segments, much as the various heat engines (diesel, gas turbine, Otto cycle, and steam turbine) have various market segment/strengths.

Question: What would be the consequences of eliminating further funding for this program in fiscal year 1997?

Answer: If not funded in FY 1997, we believe that any further development of this solid oxide technology (in which the U.S. currently has a significant lead) would either be completed by the developer with international funding or the rights to the technology would be sold to the highest bidder -- most probably foreign.

Historical and Outyear Costs of Fuel Cell Development

Question: For the record, please provide information by year on the cost of each fuel cell program, including past costs and estimated outyear costs.

Answer: The historical fuel cell program cost by type and by year as enacted by appropriations from FY 1976 to FY 1996 is provided in the attached table. The proposed budget request in FY 1997 is $32.9 million for molten carbonate, $12.5 million for advanced concepts (solid oxide), and $1.2 million for advanced research. Estimated outyear costs are $18 million to $20 million per year for each of the three fuel cell technologies (two in molten carbonate and one in solid oxide) in order to reach our planned first market readiness goal by year 2000.

ENACTED APPROPRIATIONS DOE/FE FUEL CELLS

($ in thousands)

	FY76	FY77	FY78	FY79	FY80	FY81	FY82	FY83	FY84	FY85	FY86
AR&TD	$0	$0	$0	$0	$0	$0	$0	$2,000	$4,000	$1,910	$1,272
Phosphoric Acid	3,700	18,050	30,800	19,500	23,500[1]	21,000	20,640	17.550	28,800	28,912	20,355
Molten Carbonate	0	1,450	2,200	17,000	12,000	9,000	9,600	7,500	9,200	8,851	9,932
Advanced Concepts (Solid Oxide)	0	1,500	2,200	4,000	0	2,000	4,224	5,000	4,600	3,048	3,770
Total	$3,700	$21,000	$35,200	$40,500	$35,500	$32,000	$34,464	$32,050	$46,600	$42,721	$35,329

	FY87	FY88	FY89	FY90	FY91	FY92	FY93	FY94	FY95	FY96[4]	FY76-96
AR&TD	$1,350	$1,547	$1,597	$1,458	1,444	$1,564	$1,462	$1,428	$1,430	$1,317	$23,779
Phosphoric Acid	15,500	13,200	9,500	8,291	8,843	3,909	0	0	0	0	292,050
Molten Carbonate	7,621	11,100	7,069	16,777	18,413	28,628	30,531	31,868	29,434	38,067	306,241
Advanced Concepts (Solid Oxide)	4,963	8,353	8,368	11,473	14,160	16,671	18,451	17,793	16,091	13,080	159,745
Total	$29,434	$34,200	$26,534	$37,999	$42,860[2]	$50,772[3]	$50,444[3]	$51,089[3]	$46,955[3]	$52,464	$781,815

[1] Includes $9,500,000 transfer of fuel cell appropriations from Conservation for the 40 KW on-site phosphoric acid program.

[2] After reprogramming of $30,000 in FY 1991 by ASFE.

[3] Adjusted appropriations after SBIR ans STTR reductions of FY 1992 - $533,000; FY 1993 - $684,000; FY 1994 - $$689,000; FY 1995 - $908,000.

[4] Conference committee mark.

Question: Also provide for the record a year by year funding profile for each fuel cell program assuming downselection to a single contractor for each program at the beginning of fiscal year 1997.

Answer: The historical profile from FY 1976 to FY 1996 would be the same as that in the previous question. It would be technically premature at the beginning of FY 1997 to downselect any of the technologies represented by each of the contractors since there would not be enough data available on which to base a downselection. It is estimated that each contractor would require on the order of $18 million to $20 million per year to reach the market readiness. However, we propose as a viable alternative, a downselection strategy that will allow us to reach the first market readiness point by the year 2000. This plan, which identifies two lead systems developers and one critical component developer, will allow for a viable program, within current budget constraints, that could launch a sustainable domestic fuel cell industry.

Oil Technology
National Institute for Petroleum Energy Research

Question: What does the budget assume with respect to continued funding for NIPER in fiscal year 1997?

Answer: The current congressional budget request assumes continued funding for NIPER in fiscal year 1997 at estimated $20.8M. This includes:

Research Base Program	$ 9.3M
Research Support	$ 4.7M
Subcontract Mortgages/Award Fee	$ 6.8M
Total	$20.8M

Question: How is NIPER affected by the recent reprogramming request to reorganize Fossil Energy? Please provide details for the record.

Answer: The reprogramming request dated April 2, 1996, regarding the proposed reorganization of the Office of Fossil Energy does not affect NIPER. The proposed reorganization was designed to facilitate the continued accomplishment of Fossil Energy's mission, while downsizing the number of Federal and Contractor staff over the next four fiscal years.

The Secretary of Energy, in her August 3, 1995, announcement of the Strategic Alignment Initiative, directed Fossil Energy to commence efforts to privatize NIPER and to consolidate the oil and gas exploration and production functions in one office to be located in Golden, Colorado. Fossil Energy's ability to conduct privatization activities is dependent upon its ability to successfully negotiate privatization with the current M&O

contractor, BDM-Oklahoma. It is anticipated that these negotiations will be completed by the end of June 1996. Once negotiations are completed, Fossil Energy will forward a reprogramming request for NIPER privatization and relocation to Golden.

Question: For the record please provide a project level comparison, tied to the key activities in the budget, of funding for programs at NIPER in fiscal years 1996 and 1997.

Answer: ($ in thousands)

FUNDING FOR PROGRAMS AT NIPER

ACTIVITY	PROJECT TITLE	FY96	FY97
SUPPORTING RESEARCH			
SR-01	Planning & Analysis	$4,082	$3,426
	Technology Transfer	50	0.00
SR-03	Planning & Analysis-Program Support	950	600
SR-04	Extraction	5,985	3,634
SR-06	Reservoir Characterization	5,145	1,778
SR-07	Technology Transfer	2,772	3,027
SR-10	Exploration and Drilling	2,595	3,014
SR TOTAL		$21,579	$15,479

ACTIVITY	PROJECT TITLE	FY96	FY97
ENVIRONMENTAL RESEARCH			
ER-02	Planning & Analysis-Program Support	$250	$275
ER-03	Streamline Regulations	770	450
ER-04	Risk Assessment	490	890
ER-05	Produced Water Research	241	350
ER-TAX	Award fee	162	0.00
ER TOTAL		$1,913	$1,965
FIELD DEMONSTRATIONS			
FD-07	Assistance to Independents	0.00	700
FD TOTAL		$0	$700
PROCESSING/DOWNSTREAM			
DO-01	Pollution Prevention	2,285	2,,75
DO-02	Environmental Compliance	300	300
DO-03	Upgrading Technology Development	100	100
DO TOTAL		$2,685	$2,675
	GRAND TOTAL TO NIPER	$26,177	$20,819

Program Direction

Question: Why is headquarters program direction funding decreasing by only 5% in fiscal year 1997 while program direction funding in the field is decreasing by nearly 18%? (budget p. 83).

Answer: The overall decrease of 18% in program direction funding in the field is a result of the overall decrease of 50% in contract services at all three field locations.

Question: For the record, please provide a location by location breakout of program direction funding and staffing for each non-headquarters facility and M&O contractor for fiscal years 1996 and 1997, along with an explanation of any changes.

Answer:

Breakout of Program Direction Funding and Staffing by Location
FY 1996 - FY 1997
(dollars in thousands)

	FY 1996		FY 1997	
Program Direction	Amount	FTE	Amount	FTE
Morgantown	$27,002	180	$19,263	170
Pittsburgh	25,257	156	17,451	147
Bartlesville	3,017	23	8,500	23
Total	$55,276	359	$45,214	340

The major reduction in program direction funding for FY 1997 at Morgantown and Pittsburgh is a result of a 50% decrease in funding for contract services at all three field locations (including Bartlesville). The increase in Bartlesville's program direction is due to funding of $6 million for transition costs for the M&O contractor at Bartlesville.

Plant and Capital Equipment

Question: What would be the impact of funding plant and capital equipment from within individual program costs, subject to the established reprogramming guidelines?

Answer: The impact of funding plant and capital equipment from within individual program costs would be to distort the actual funding required to complete a project. From a cost accounting perspective, items with a lasting service life greater than three years should be accounted for separately from items expensed in a fiscal year. These items may also have more than one purpose and serve a multitude of projects. Trying to expense the cost of these items would pose a serious accounting challenge.

Many items such as repair to facilities, the purchase of computers, or the upkeep of local area networks should be accounted for separately and not charged to one specific project.

Cooperative Research and Development

Question: What is the impact of reducing cooperative research and development programs from $6,295,000 in FY 1996 to $4 million in FY 1997?

Answer: The Base Research Programs at both the University of North Dakota Energy and Environmental Research Center (UNDEERC) and the Western Research Institute (WRI) would be eliminated. Funding for UNDEERC's Jointly-Sponsored Research (JSR) Program would be reduced by 1.5 percent, while that for WRI's JSR Program would be reduced by 11 percent.

Question: What programs are currently funded at WRI and what will become of those efforts at the reduced funding level?

Answer: The tasks that are currently funded under the Western Research Institute (WRI) Base and Jointly-Sponsored Research (JSR) programs are given in the tables below. These two programs support DOE/Fossil Energy's broad mission in coal utilization, oil and gas recovery, energy efficiency, and environmental technology. The JSR Program leverages DOE seed funding to induce private sector participation. The current level of commercial cofunding in the JSR Program is 60 percent of the total project cost (at least 75 percent of this 60 percent is in-kind contributions). This also ensures an effective mechanism for technology transfer for eventual commercialization by the private sector. At the reduced funding level, the Base Program research would be terminated, and the research in the JSR Program would continue, but at 11 percent lower funding than in FY 96.

WRI JSR Program Tasks for FY 96
Cooperative Agreement Number DE-FC21-93MC30127

Title	Planned FY 96 DOE Funding ($)
Development and Demonstration of an Electric Downhole Steam Generator	300,000
Chemical Sensor Development	574,000
Demonstration of the Koppelman "Series C" Process	1,000,000
PFBC Ash Use Study	200,000
CROW Demonstration with Bell Lumber and Pole	30,000
Pennsylvania Power & Lighting CROW Demonstration	120,000
TOTAL	2,224,000

WRI Base Research Program Tasks for FY 96
Cooperative Agreement Number DE-FC21-93MC30126

Title	Planned FY 96 DOE Funding ($)
Miscible-Immiscible Gas Injection Processes	200,000
Tank Bottom Waste Recovery Using TaBoRR Process	160,000
Development and Testing of Coal-Fired Gas Turbine System	191,000
Evaluation of Dense Gas Dispersion Test Results	175,000
Plasma Reactions to Desulfurize Heavy Oils	50,000
TOTAL	776,000

Question. What programs are currently funded at UNDEERC and what will happen to those programs at the reduced funding level?

Answer: The reduction would eliminate one small project, a part of a larger project, or smaller parts of several larger projects. The tasks that are currently funded under the Jointly-Sponsored Research (JSR) and the Base Research Program are given in the tables below.

UNDEERC JSR Program Tasks for FY 96
Cooperative Agreement Number DE-FC21-93MC30098

Title	Planned FY 96 DOE Funding ($)
Training and Support for Hot-Gas Filter Testing	20,539
Development of a Coal Combustion Byproducts Database System	19,800
Mercury Sorbent Evaluation	64,000
Coal Ash Behavior in Reducing Environments (II)	118,000
Validation of Fireside Performance Indices	100,000
Deposition of Lignites in the Fort Union Group and Related Strata of the Northern Great Plains	25,000
Oxygen Plasma Unit for Soil Decontamination: Demonstration of a Field-Scale Unit	199,703
Formal Evaluation of Flue Gas Chemical Measurement Methods	322,555
Evaluation of a Zirconium Additive for the Mitigation of Molten Ash Formation During Combustion of Residual Fuel Oil	25,373
Enhanced Air Toxics Control	121,030
Coal Ash Resources Research Consortium 1995-1996 Research	85,000
Fourier Transform-Infrared Spectroscopy Investigation of Fireside Deposits in a Pilot-Plant Combustor	60,000
Gas Industry Groundwater Research Program	400,000
An Assessment of the Subsurface Fate of Monoethanolamine at Sour Gas Processing Plant Sites	50,000
Hot Gas Filter Ash Characterization Project	275,000
Development of Hydrothermal Treatment for Wastewater and Economic Development	40,000
Removal of Hazardous Heavy Metals from Wastewater with Activated Carbons	60,000
Utilization of Petroleum Coke for Power Production	44,000
TOTAL	2,030,000

UNDEERC Base Research Program Tasks for FY 96
Cooperative Agreement Number DE-FC21-93MC30097

Title	FY 96 Funding ($)
Hot-Water Extraction of Organics, Metals, and Halogens from Coal and Contaminated Soils	48,500
Spectroscopic Field Screening of Hazardous Wastes and Toxic Spills	16,167
Solid-Phase Microextraction Coupled with Optical Spectroscopy for Near-Real-Time Determination of Fuel and Related Pollutants in Water Samples	48,500
Mercury Capture Mechanisms on Solid Surfaces and Aerosols	137,417
Mercury Speciation and Capture in Scrubber Solutions	40,417
Improved Methods for Chlorine and Fluorine in Coal	24,250
Small Power Systems Commercialization Plan	32,333
Impacts of Low-NO_x Combustion on Fly Ash and Slagging	80,833
Low-Cost Coal-Water Fuel for Entrained-Flow Gasification	40,417
Hot-Gas Cleanup	161,667
Hydrogen Bioproduction	32,333
Value-Added Products from Syngas	32,333
Value-Added Carbons	60,625
Engineering Performance of Advanced Structural Materials	80,833
Materials for Gas Separation	48,500
SiAlON Coatings for Alkali-Resistant Silicon Nitride	48,500
Strategic Planning	36,375
TOTAL	970,000

Mining Research

Question: What changes in programs between 1996 and 1997 are assumed in the budget for the materials research activities transferred from the Bureau of Mines?

Answer: There are no changes planned in the materials research program between 1996 and 1997. The budget proposed for 1997 is the same as the 1996 budget of $5 million.

Question: What staffing is assumed for these activities in 1996 and 1997 and what is the staffing distribution in each of those years between headquarters and the field?

Answer: The activities proposed to stay in DOE in 1997 are the Materials Group (85 FTE's) and the Environmental Technology Group (29 FTE's). The staffing for 1996 and 1997 is staying the same with all FTE's in the field.

Question: What level of funding and staffing will be transferred to the National Institute of Occupational Safety and Health in fiscal year 1997 to continue the health and safety programs of the former Bureau of Mines?

Answer: The funding of $32 million and the staffing of 413 FTE's is to transfer to the National Institute of Occupational Safety and Health in 1997 to continue the health and safety program of the former Bureau of Mines.

Question: How does the staffing to be transferred to NIOSH compare with the staffing that was transferred to Fossil Energy from the Bureau of Mines in fiscal year 1996?

Answer: There are 527 FTE's that were transferred from BOM to DOE in FY 1996. There will be 413 FTE's that will transfer from DOE to NIOSH in FY 1997 to continue the health and safety programs. Of the 527 FTE's 85 FTE's will stay in DOE with the materials program and 29 FTE's are proposed to stay in DOE with the environmental technology programs.

GAO Analysis of Carryover Balances

Question: The GAO has found that the carryover funding for fossil energy research, the strategic petroleum reserve and the naval petroleum reserve are all higher that appears necessary. Why aren't portions of these large funding balances being used as offsets to new budget authority for fiscal year 1997?

Answer: The Department does not agree that the uncosted balances are excessive and in fact the Department should be commended for the excellent job we have done in bringing the balances down

Approximately $200 million in the Fossil Energy R&D account is tied to contracts in the closeout process. These funds are withheld from the contractor pending payment of the final voucher and a final audit. We are required to use the Defense Contract Audit Service to closeout these contracts and they have over a five year backlog in audits due to a lack of staff.

Fossil Energy has over 400 contracts in this process. When the final audit is complete, a payment is made to the contractor and very little, if any, funds are returned to DOE. The remaining balance of uncosted is for ongoing contracts. In most cases funds have been obligated to these contracts for the purchase of equipment that must be custom made. In other cases, our funds must be obligated in advance to assure matching funds from the industrial participant. This leads to uncosted balances that remain on the books until expended at the end of the project.

Since the GAO report which identified field data at the end of FY 1995, Fossil Energy has reduced it's uncosted balances by $80 million through the payment of invoices and the closeout of some contracts.

Question: Please conduct a careful review of your uncosted balances and provide details for the record of amounts that could be applied to offset your 1997 funding.

Answer: Fossil Energy has conducted a review of our uncosted balances and has reduced the balances in the Fossil Energy R&D account by $80 million since the beginning of FY 1996. At this time, there are no funds available to offset our FY 1997 funding. Over 400 contracts estimated at over $200 million are in the closeout process. Once these contracts are closed, most funding will be released to the contractors to pay final invoices.

Naval Petroleum and Oil Shale Reserves

Sale of the Reserves

Question: Explain the legal opinion on which you based your decision to proceed with funding the NPR sale without the approval of the Appropriations Committee and in violation of existing Appropriations law.

Answer: There was no "decision to proceed with funding the [Elk Hills] sale * * * in violation of existing [a]ppropriations law." The availability of existing appropriations to begin complying with the express mandates contained in the 1996 Defense Authorization Act was carefully analyzed in the attached memorandum. This analysis concluded that unexpended balances of appropriations made for Naval Petroleum and Oil Shale Reserve activities were legally available to begin to carry out the specific mandates regarding the Naval Petroleum Reserves contained in the 1996 Defense Authorization Act, including Elk Hills divestiture, and that the conflicting limitations previously imposed by section 501 of the 1989 Dire Emergency Supplemental Appropriations Act were repealed by implication when the 1996 Defense Authorization Act became law because the restrictions of section 501 were irreconcilable with several of the specific commands made by the 1996 law.

Question: How will the NPR sale be structured?

Answer: On April 10, 1996, the Department selected an investment banker with extensive experience in sales of oil and gas properties to be the sales administrator for the NPR Elk Hills asset. The investment banker will develop a preliminary strategy for the sale of Elk Hills, followed by a more technical market analysis prior to finalizing details of a sales plan. The principle objective of the sales plan will be to structure a process that maximizes competition among the broadest possible range of potential buyers, thereby maximizing the potential sale price.

Question: To what extent will other portions of NPR (in addition to Elk Hills) be sold?

Answer: Public Law 104-106 authorizes the Department to conduct a study of the remaining NPOSR assets (NPR-2, NPR-3, NOSR-1, NOSR-2, and NOSR-3) to determine which of four options best maximizes the value of these assets to the United States. The options to be examined are (1) retention and operation by the Department, (2) transfer to another Federal agency for administration, (3) transfer to the Department of Interior for leasing in accordance with the Mineral Leasing Act and surface management in accordance with the Federal Land Policy and Management Act, and (4) sale of the interest of the United States. Until this study is completed, the Department does not know if all, or any, of the remaining NPOSR assets will be recommended for sale.

Question: Please describe the various fields that comprise the NPR, the revenues each of them generate, and how they will be treated in the sale process.

Department of Energy
Washington, DC 20585

March 14, 1996

NOTE FOR: Mary H. Egger
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for Procurement and
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FROM: Deputy General Counsel

SUBJECT: Availability of Appropriations for
Elk Hills Sale Activities

Your note of February 6, 1996 sought my advice on the question whether otherwise available balances from appropriations made for the conduct of Naval Petroleum Reserves activities prior to the President's approval of the National Defense Authorization Act for Fiscal Year 1996, Pub. L. No. 104-106, 110 Stat. 86 (1996), are available to carry out the Elk Hills divestiture activities required of the Department by Title XXXIV of that act. For the reasons described below, I conclude that such appropriations are available for these Elk Hills divestiture activities.

The 1996 Defense Authorization Act

Section 3412 of the Defense Authorization Act requires the Secretary, "not later than two years after the [act's] effective date," to "enter into one or more contracts for the sale of * * * Naval Petroleum Reserve Numbered 1," the less-colloquial name for Elk Hills. Succeeding passages of the act specify in detail the procedures and techniques the Secretary is to employ toward the sale objective, and specify times by which the intervening steps must occur. E.g., secs. 3412(c) & (d) (publication of notice of intent to sell within two months and retention of experts within seven months); sec. 3412(b) (solicitation of offers within 13 months and identification of the highest responsible offer within 18 months).

The Defense Authorization Act does not explicitly amend Chapter 641 of Title 10, United States Code, the positive law governing management of the Naval Petroleum Reserves. As to the "sale of [Elk Hills]," however, "Chapter 641 of title 10, United States Code, shall not apply." Defense Authorization Act, sec. 3412(a). Thus the divestiture provisions are an overlay on Chapter 641 explicitly specifying (in considerable detail) the Secretary's required conduct of activities related to the sale of Elk Hills.

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The Prior Appropriations

Two have been examined: the Department of the Interior and Related Agencies Appropriations Act, 1995, Pub. L. No. 103-332, 108 Stat. 2499, 2525 (1994), and the Balanced Budget Downpayment Act, I, Pub. L. No. 104-99, 110 Stat. 26 (1996), the currently-effective continuing resolution that includes matters addressed in the as-yet unenacted 1996 Interior appropriation bill. The 1995 appropriation provides, as pertinent, simply:

> For necessary expenses in carrying out naval petroleum and oil shale reserve activities, $187,406,000, to remain available until expended[.]

Pub. L. No. 103-332, supra, 108 Stat. 2525.

This item neither links its objects solely to Naval Petroleum Reserve Numbered 1 at Elk Hills nor limits them to the particular provisions of Chapter 641 of Title 10. Nor is there a temporal limitation of the particular "naval petroleum * * * reserve activities" such as one might infer had the appropriation objects been described as "current" or "existing" naval petroleum reserve activities, or some such other formulation as "currently specified under Chapter 641 of title 10, United States Code."

The point here is that the statutory object of this lump-sum appropriation extends to all "naval petroleum and oil shale reserve activities" irrespective of whether the nature of those "activities" is altered during a fiscal year by supervening legislation that commands of the Secretary a new direction in their conduct. The fact that the supervening legislation imposes a new direction in the management of these reserves does not make the Secretary's response to it any the less a "naval petroleum and oil shale reserve activit[y]" for which the 1995 appropriation explicitly was made.[1]

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[1] As its text indicates, the 1995 appropriation "remain[s] available until expended." Therefore all unexpended and unobligated balances from it are available to carry out the Elk Hills divestiture provisions of the 1996 Defense Authorization Act, pursuant to that statute's terms. This note does not address the question whether the $7 million limitation on Elk Hills sales activities contained in the 1996 Defense Authorization Act applies to the previously-enacted appropriations examined here.

The second appropriation appears in the current continuing resolution, Pub. L. No. 104-99, 110 Stat. 26 (1996). At the outset, its objects are defined as the "authority and conditions" contained in the 1995 predecessor of the unenacted "Department of the Interior and Related Agencies Appropriations Act, 1996." Ibid. Therefore as a threshold matter the continuing resolution's objects are coextensive with those of the 1995 appropriation, and under the above analysis Elk Hills divestiture would appear plainly within them. The remaining question is whether any other provision of the continuing resolution would constrict its objects so as to exclude implementing the subsequently-enacted Elk Hills divestiture provisions of the 1996 Defense Authorization Act.

Section 103 of the continuing resolution provides:

> No appropriations or funds made available or authority granted pursuant to [the general appropriating provisions of the continuing resolution] shall be used to initiate or resume any project or activity for which appropriations, funds, or other authority were not available during the fiscal year 1995.

Pub. L. No. 104-99, 110 Stat. 27 (1996).

This is the provision that, in the informal parlance of administering appropriation acts, has the continuing resolution foreclosing so-called "new starts." Its text, however, does not quite correspond to the informal parlance here.

What section 103 actually forecloses is use of the continuing resolution's appropriation "to initiate * * * any project or activity for which appropriations * * * were not available during the fiscal year 1995." Ibid. As has been described above, the "activity" for which the 1995 appropriation was made was "carrying out naval petroleum and oil shale reserve activities." Thus the "activity" for which the continuing resolution made appropriations clearly encompasses the naval petroleum reserve "activities" that were funded by the 1995 appropriation act without any temporal or qualitative limitation that would have trumped subsequently-enacted laws mandating new initiatives within this ongoing governmental activity.[2]

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[2] A stereotype of a new start, or new "project or activity" not previously funded, would be an initiative, like building a new physics machine, within the sponsor agency's discretionary authority under permanent law but funding for which had first been proposed for inclusion in the unenacted appropriation the continuing resolution addresses. Unlike the Elk Hills divestiture mandate considered in this note,

The remaining question here is whether the 1995 appropriations, for purposes of the existing continuing resolution, "were not available during the fiscal year 1995" because of the limitation on expenditures contained in the Dire Emergency Supplemental Appropriations, etc., Act, 1989, Pub. L. No. 101-45, 103 Stat. 97, 103 (1989). In full, that limitation provides:

> Sec. 501. No funds appropriated or made available heretofore or hereafter under this or any other Act may be used by the executive branch to contract with organizations outside the Department of Energy to perform studies of the potential transfer out of Federal ownership, management or control by sale, lease, or other disposition, in whole or in part, the facilities and functions of Naval Petroleum Reserve Numbered 1 (Elk Hills), located in Kern County, California, established by Executive order of the President, dated September 2, 1912, and Naval Petroleum Reserve Numbered 3 (Teapot Dome), located in Wyoming, established by Executive order of the President, dated April 30, 1915: Provided, That the negotiation of changes to the unit plan contract with Chevron which governs operation of Elk Hills, where the purpose of the changes is to prepare for the divestiture of the Reserve, is prohibited.

The text of this provision does not expressly alter the objects of the relevant appropriations. Instead it interdicts "use[] by the executive branch" of funds that were or might be "appropriated * * * heretofore or hereafter * * * to contract with [non-Departmental personnel] to perform studies" of potential Elk Hills divestiture, together with undertaking negotiation of changes to the "unit plan contract with Chevron" for the "purpose" of preparing for divestiture. Ibid.

Despite its prospective nature,[3] section 501 does not address at all use of appropriations for selling Elk Hills; its limitations are directed to use of appropriations to commission contractor-prepared studies of potential divestiture, and conducting (seemingly irrespective of use of appropriations) negotiations with Chevron directed to revising the unit plan contract in order

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under the stereotype the Congress would not yet have legislated its approval of the proposed initiative at the time it adopted the continuing resolution.

[3] Section 501 was enacted in evident response to an opinion rendered by this office in 1989 that concluded that a predecessor limitation contained in the 1987 Interior Appropriations Act was effective only as to funds appropriated and otherwise available (from prior fiscal years) for fiscal year 1987.

"to prepare for" divestiture of Elk Hills. Therefore by its terms section 501 would not foreclose expenditures associated with conduct by Departmental and contractor personnel of divestiture activities themselves (as contrasted to "perform[ing] studies" of potential divestiture), and which do not involve negotiations with Chevron to revise the unit plan contract to prepare for divestiture. In short, section 501 for the most part does not limit use of appropriations to conduct Elk Hills divestiture activities. And its very existence as a limitation on "use[]" of appropriations necessarily implies that, in 1989, Congress viewed the statutory objects of the annual "naval petroleum and oil shale reserve activities" appropriation, without this limitation, as embracing Elk Hills divestiture planning.[4]

This is not to say that there are no conflicts between Title XXXIV of the Defense Authorization Act and section 501 of the 1989 Supplemental Appropriations Act. As has been noted above, the Defense Authorization Act requires retention of "experts" to aid the Department in carrying out that statute's provisions. It also requires "equity finalization" within eight months, an event that could not conceivably occur without "negotiation * * * with Chevron" about its entitlements under the unit plan contract, an activity explicitly within the embrace of the limitations imposed by section 501 of the 1989 Supplemental Appropriations Act. And finally the command of section 3416 of the Defense Authorization Act that the Secretary, through "an independent petroleum consultant," conduct a study that includes "[s]ale of the interest of the United States in [all] the naval petroleum reserves * * * (other than Naval Petroleum Reserve Numbered 1)" overtly is at odds with section 501's limitation on use of existing or future appropriations "to contract with organizations outside the Department of Energy to perform studies of the potential transfer out of Federal ownership * * * [of] Naval Petroleum Reserve Numbered 3 (Teapot Dome)[.]"

Thus a fair reading of section 501 has its limitations on retention of contract consultants and negotiations with Chevron conflicting with certain of the activities required explicitly of the Secretary by the 1996 Defense Authorization Act. The Defense Authorization Act did not, however, explicitly repeal section 501. Therefore the analysis here must be directed to the question whether section 501 has been repealed by implication with the enactment of Title XXXIV of the 1996 Defense Authorization Act.

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[4] The statutory objects of the 1989 and 1990 appropriations were, in relevant part, identical to the 1995 appropriation whose objects guide us here. Compare Department of the Interior and Related Agencies Appropriations Act, 1989, Pub. L. No. 100-446, 102 Stat. 1774, 1812 (1988); Id., 1990, Pub. L. No. 101-121, 103 Stat. 701, 730 (1989).

Because our first task in implementing them is to seek to harmonize the two statutes, the initial presumption is that both are to be given effect. As has been described above, giving effect to section 501 by its terms does not prevent conduct of the sale of Elk Hills that is required by the Defense Authorization Act. This is so because section 501 by its terms does not foreclose use of appropriated funds to conduct the sale of Elk Hills; instead it forecloses use of appropriated funds only for the two specified activities of conducting studies by contractors of potential divestiture and negotiating revisions of the unit plan contract with Chevron.

These features of section 501 do, however, conflict with the explicit requirements of the Defense Authorization Act that the Department retain outside experts to aid it in soliciting and considering offers from potential purchasers of Elk Hills, employ an independent consultant to conduct a study of possible divestiture of the rest of the Naval Petroleum Reserves, and finalize the equity determination (inevitably requiring negotiation with Chevron). It is simply not possible to harmonize the specific limitations imposed by section 501 with these specific commands of the Defense Authorization Act, where both the specific limitations and the later specific legislative commands are directed to the same subject matter of the Naval Petroleum Reserves.

While repeals by implication are disfavored, here there is a "clear repugnancy between the old law and the new [which] results in the former giving way * * * to the extent of the repugnancy." Georgia v. Pennsylvania R.R. Co., 324 U.S. 439, 457 (1945). Both the particular mandates and the legislative policy objectives of the two "are irreconcilable." Morton v. Mancari, 417 U.S. 535, 550 (1974). Given the two laws' respective commands, as to the matters addressed by section 501 the repugnancy seems both stark and complete, presenting "an irreconcilable conflict between the two federal statutes at issue." Matsushita Elec. Indus. Co. v. Epstein, 64 U.S.L.W. 4101, 4105 (U.S. Feb. 27, 1996) (internal quotations omitted). Therefore the Department is to be guided exclusively by the mandates contained in the Defense Authorization Act, notwithstanding the limitations hitherto imposed by section 501.[5] Because complying with those mandates involves performing activities within the statutory objects of the two appropriation acts examined here, balances from those appropriation acts currently are available for carrying out the naval petroleum reserves divestiture activities required by the 1996 Defense Authorization Act.

General Counsel Damus of the Office of Management and Budget has authorized me to state that the Office of Management and Budget concurs in this conclusion.

Eric J. Fygi

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[5] The vividness and clarity of the conflict here render unnecessary analysis of the question whether the rule disfavoring repeals by implication applies with lessened force when the claimed repeal stems from regular legislation while the prior inconsistent law was enacted "solely on an Appropriations Act." Cf., TVA v. Hill, 437 U.S. 153, 190 (1978) (rule applies with greater force when the "claimed repeal rests solely on an Appropriations Act").

NOSR-1, NOSR-2 and NOSR-3. Provided below is a brief description of each field.

NPR-2 consists of 30,181 acres located adjacent to NPR-1 outside of Bakersfield, California. The Government owns 10,446 acres (35 percent), with the remainder privately owned. All of the Government's productive acreage is leased, and development and production operations are carried out by the lessees. The Government receives production royalties. NPR-2 has been produced continuously since the 1920's, and is essentially a stripper field today Total production is slightly over 3,000 barrels of oil per day. Over the last several years, the Government's share of production has averaged about 250 barrels per day. In addition, the Government receives about 1,500 thousand cubic feet per day of natural gas and 600 gallons per day of liquid products. The Government's share of royalty production is sold with the revenues deposited in the U.S. Treasury. Government expenses associated with NPR-2 are minimal and include lease surveillance, production accounting and oversight.

NPR-3 consists of 9,481 acres located outside of Casper, Wyoming and is totally government owned. NPR-3 was produced periodically for about 50 years, mostly for offset production, prior to full open-up in 1976. Production peaked in 1980 at almost 4,400 barrels per day. Currently, NPR-3 produces about 1,800 barrels per day. In addition, 6,000 thousand cubic feet of natural gas and over 6,000 gallons of liquid products are produced daily Oil and liquid products are sold competitively on the open market with revenues deposited in the U.S. Treasury, while natural gas is reinjected into the field for pressure maintenance.

NOSR-1 consists of 36,406 acres located outside of Rifle, Colorado. Except for about 600 acres of private oil shale claims, the Government owns all minerals and lands. NOSR-1 is estimated to contain about 18 billion barrels of shale oil in place, with approximately 2.5 billion barrels of recoverable oil, although it is not economically producible at current oil prices. NOSR-1 is also believed to contain reserves of natural gas, however, there has been no development activity. NPOSR prepared a study of development options which included a resource assessment by the United States Geological Survey. The study estimated that development of NOSR-1 could result in the production of 432 billion cubic feet of natural gas. Current activity at NOSR-1 is limited to land management and environmental monitoring.

NOSR-2 consists of 88,890 acres located in Carbon and Uintah Counties, Utah. There is estimated to be 4 billion barrels of shale oil in place, though it may not be technically or economically producible. Seismic data has indicated the potential for conventional oil and gas deposits, but no exploration or development activity has been performed. The study of development options for NOSR-2 estimated that development could result in the production of 172 billion cubic feet of natural gas. Current activity is limited to land management.

NOSR-3 consists of 20,171 acres located adjacent to NOSR-1 in Colorado. It was originally set aside to provide access to water and working space to support NOSR-1 shale oil development. Subsequently, natural gas reserves which underlie NOSR-3 have been discovered. There has been extensive private development of these reserves outside the NOSR-3 boundary. In order to protect the Government's share of these gas resources, a natural gas protection plan was implemented. This plan consists of drilling wholly Government-owned wells to offset private production, and the communitization of wells with private industry where the well drainage area crosses NOSR-3 boundaries. The Government shares in the cost and production of communitized wells based on their percentage of ownership Drilling and communitization activity is limited to protection only, and does not include development of NOSR-3. Currently, there are 52 wells in which the Government has full or part ownership. The Government's share of production is approximately 10,000 thousand cubic feet per day. Part of the revenues (about 75 percent) generated from the sale of natural gas is returned to the program to fund future protection requirements, while the remaining revenues are deposited in the U.S. Treasury. This program is reactive in nature to the amount of commercial drilling occurring along the NOSR-3 boundaries.

The following table provides the recent and estimated revenues streams from these assets:

Revenues
($ in millions)

	FY 1993	FY 1994	FY 1995	FY 1996	FY 1997
NPR-2	2.6	1.6	1.7	1.8	1.2
NPR-3	14.2	10.2	12.2	14.7	10.1
NOSR-1	0.0	0.0	0.0	0.0	0.0
NOSR-2	0.0	0.0	0.0	0.0	0.0
NOSR-3	3.5	2.9	2.5	4.7	4.2

The Department recently contracted with an independent consultant to conduct a study of these assets to determine which of the four options provided in Public Law 104-106 will best maximize the value of these assets to the United States Sale is one of options that will be evaluated. The Department is awaiting completion of this study before determining a course of action with regard to these assets.

Question: When is the sale scheduled to take place?

Answer: Public Law 104-106 requires that the Department enter into one or more contracts for the sale of the United States' interest in Elk Hills not later than February 10, 1998. The Department has begun the initial phases of the sales process, however, we are not far enough into the sales process to determine a sales date other than that required by Public Law 104-106. The Department will make every effort to complete the sale as soon as possible.

Question: The CBO estimated that the sale of NPR would cost the taxpayer nearly $2.6 billion in foregone revenue. What is your response to that CBO analysis?

Answer: CBO's September 26, 1995, analysis assumed that $1.550 billion would be generated by sale of all of the Naval Petroleum and Oil Shale Reserves. The portion of this estimate attributable to the sale of Elk Hills was $1.500 billion. Over a seven year scoring period (as required by budget scoring laws) CBO estimated that revenue foregone as a result of the sale of Elk Hills would be $2.5 billion. Scoring law does not allow the scoring on the mandatory side of the budget of savings of discretionary spending that would occur as the result of a direct spending action. Therefore CBO's "scoring" of the transaction did not reflect $1 billion in savings from discretionary spending that would not have to occur as the result of the sale. Furthermore, while CBO's asset sale figure ($1.55 billion) was a discounted cash flow calculation, neither the lost revenue or the "saved" spending were computed on a comparable basis; they were not discounted.

While CBO did a rigorous analysis of Elk Hills in determining their scoring estimate, they do not have the expertise to actually determine the value of Elk Hills. Congress recognized the lack of government expertise in calculating value of the Reserve, when it passed the Defense Authorization Act of 1996, which authorized the sale. In this Act, Congress required the Department of Energy to obtain outside, independent expertise in calculating the minimum acceptable bid price. Until these experts provide their evaluations to the Department, no one will know the true precise value of the Reserve. Additionally, the statute prohibits the Department from selling the reserve for less than it's value.

Question: What analysis do you have that contradicts the CBO analysis?

Answer: Several analysis are routinely done during the year by the NPOSR Program for planning purposes, specifically to evaluate future net revenues under different development and budget conditions. All of these are derived from fundamental geologic and engineering data about the behavior of numerous producing oil and gas zones. For NPR-1, the primary source or analytical data is the "FY 1995 Long Range Plan, Naval Petroleum Reserves in California", published in August 1995

Question: How much will you spend in fiscal years 1996 and 1997 for studies and other sale specific costs? Please provide details for year for the record.

Answer: Current budget estimates for NPR Elk Hills divestiture activities are $7 million in fiscal year 1996 and $5.1 million in fiscal year 1997.

Contract for Elk Hills Operations

Question. What have you done to streamline your Elk Hills operation?

Answer: During the summer of 1995, a work force restructuring occurred at Elk Hills which resulted in the separation of 194 management and operating contractor employees (of which 192 were voluntary). The restructuring was conducted based on the results of an earlier Elk Hills steering committee review of the 22 functional areas of responsibility of the contractor, Bechtel Petroleum Operations, Inc. (BPOI). The steering committee was composed of representatives of DOE, BPOI, and Chevron U.S.A.

The restructuring process was conducted with consideration to DOE's general policy on work force restructuring (which was based upon requirements of Section 3161 of the National Defense Authorization Act for Fiscal Year 1993 which authorizes enhanced M&O contractor severance packages for DOE's atomic energy defense facilities). DOE's policy required that organizations forecasting a significant reduction in contractor staffing levels prepare a plan for mitigating the impact of the reduction on the workers and the community. Aspects of the plan were to include: stakeholder input, incentives for voluntary reductions, reemployment/placement assistance, counseling, availability of continued medical benefits, and appropriate education or retraining opportunities.

The estimated annual savings, after costs have been recouped, based upon the reduction of 194 employees is $11 million.

Question: When does the contract with Bechtel, for operation of Elk Hills, expire?

Answer: The current contract extension with Bechtel expires September 30, 1996. Public Law 104-106 provides the authority to extend the Bechtel contract on a non-competitive basis beyond September 30, 1996 through July 31, 1998.

Question: What will you do between the time that contract expires and the time a sale is consummated?

Answer: Public Law 104-106 requires that NPR-1 be sold on or before February 10, 1998. The Department expects to meet this date. Since the authority exists to extend the Bechtel contract through July 31, 1998 beyond the sale date, the Department does not anticipate a problem regarding the sale date and contract expiration.

Question: To what extent will you need a transition period between the time a sales contract is signed and official transfer of operations occurs?

Answer: We estimate that a transition period of 4 to 6 months will be needed between the time a sales contract is signed and the official transfer of operations occurs, depending upon the foreknowledge of the purchaser and the size of the transition team. Tasks to be accomplished during a transition period include, but are not limited to, the following:

Technical and operational briefings
Verification of inventory
Archiving of documentation
Contract close-outs
Worker termination or transfer administration

Oil Shale Reserves

Question: Why do you need $1.4 million for the Naval Oil Shale Reserves in fiscal year 1997? No funds were requested or provided for the NOSRs in 1996.

Answer: Funds were not requested for the NOSRs in FY 1996 based on the premise that the NOSRs would be leased or sold in FY 1996. Retained revenues were available to the program to fund gas protection activities, however, no funds were available to continue our other custodial activities. In order to meet our statutory responsibilities at the NOSRs, an internal reprogramming of $171,400 was accomplished to conduct land management and environmental activities. Gas protection activities, consisting of operations and maintenance, drilling and communitization, will be funded from retained revenues. It is estimated that the available retained revenues will be sufficient to meet protection requirements in FY 1996, principally because low natural gas prices in the Rocky Mountain region have reduced private development activity.

The FY 1997 budget requests $.2 million to continue land management and environmental activities at the same level as in previous years, and $1.2 million for operations and maintenance activities. Retained revenues will be used for drilling and communitization requirements. It is expected that we will be able to meet these requirements using retained revenues as long as private development activity remains relatively low.

Program Direction

Question: How do you justify a 17% increase in program direction funding for NPR in fiscal year 1997? ($6.6 million in 1996 and $7.7 million in 1997)

Answer: The increase in the FY 1997 request for program direction is due to the use of $1.2 million in available unobligated balances to reduce the FY 1996 request. The level of activity will remain approximately the same. The following table best illustrates this point.

	FY 1995	FY 1996	FY 1997
appropriation	$7.6M	$6.6M	$7.7M
obligations	$7.9M	$7.8M	$7.7M

As this table demonstrates, in order to meet anticipated obligational requirements in FY 1996, $1.2 million of unobligated balances will be used to supplement the appropriation. This was done in an effort to reduce these balances. In FY 1997, unobligated balances will not be available to offset the budget, therefore, full funding is requested for program direction.

ADDITIONAL COMMITTEE QUESTIONS

Strategic Petroleum Reserve

Question: How much money is left in the SPR Petroleum Account and how will you use that money?

Answer: The current balance in the SPR Petroleum Account is $220,065,655. Of this amount, $187,000,000 will be used to offset the FY 1996 SPR budget request for operating and managing the SPR. The remaining balance of $33,065,655 will be used for terminating contracts, quality assurance activities from Defense Contract Management Command, oil acquisition/sales support from Defense Logistics Agency through FY 1999, and approximately $13 million will be held indefinitely to finance the incremental costs of an energy emergency drawdown prior to the receipt and reapportionment of drawdown sales proceeds.

Question: How long will that money last to cover your intended use?

Answer: At an estimated outlay rate of $5 million per year for ongoing activities, the balance in the SPR Petroleum Account should last until FY1999. The remaining $13 million will be available to finance the incremental costs of an energy emergency drawdown should a drawdown be ordered by the President.

Question What reason has the Office of Management and Budget articulated for not classifying spending for this operation as part of the National security allocation?

Answer. The Strategic Petroleum Reserve was authorized by the Energy Policy and Conservation Act (EPCA) in 1975 as one element in a comprehensive program of energy management initiatives to reduce the impacts of energy supply disruptions on the U.S. economy and, through the international energy program, to reduce the impacts of energy supply disruptions on the energy consuming nations. The question of defining the Strategic Petroleum Reserve as a National Security program was resolved during the original Congressional debates to establish a Reserve by including it in the EPCA as a response measure to mitigate the economic rather than national security impacts of severe energy supply disruptions. The debates noted that the best interests of national security would be served by assuring the orderly capability of the US economy to support national security requirements rather than defining the Reserve itself as a national security program.

In reviewing this history and the SPR's place in energy emergency policy as the sole measure to respond to supply disruptions in concert with our International Energy Agency allies, it is clear that although the mission is not fundamentally a National security mission, it supports National security objectives by protecting the productive capability of the U.S economy. Reclassifying the SPR as a National security activity could threaten the current mission by forcing direct competition between core National security objectives and the broader SPR mission to protect the capability of the U.S. economy to operate efficiently and effectively during an energy emergency caused by disruption to oil supplies

Weeks Island

Question: What is the status of the decommissioning of the Weeks Island SPR site?

Answer: Following the installation of a freeze wall in September 1995 to control any possible ground water access to the mine, the Strategic Petroleum Reserve commenced relocating the site's 72-million barrel crude oil inventory to the Bayou Choctaw and Big Hill sites. As of April 18, almost 36 million barrels have been relocated and it is anticipated that most of the oil will have been removed by the end of 1996. Subsequently, the site will be backfilled with brine to ensure long-term mine stability.

Question: When will you complete the project?

Answer: The Weeks Island site is currently scheduled to be fully decommissioned by June 1999.

Sale of Oil

Question: Please describe the sale of Weeks Island oil you conducted earlier this year.

Answer: The oil was sold by the Defense Fuel Supply Center using a continuous solicitation issued on January 29, 1996. Offers to purchase the oil were received every two weeks, and following evaluation and negotiations with the offerors, contracts were awarded about 4 to 6 days later. Initial offers were received on February 20, and the first contract was awarded on February 26. Additional contracts were awarded March 8, 20 and 21. Physical deliveries to purchasers by both pipeline and marine transportation occurred during March and April.

Question: How much oil was sold and at what price? How does that compare with your original estimates?

Answer: Six contracts were awarded for a total quantity of 5.095 million barrels with an awarded value of $96,376,250, or an average $18.92 per barrel.

The oil was sold at prices comparable to prices being paid for similar quality crude oil in the U.S. gulf region. The Defense Fuel Supply Center continuously assessed the oil market and established a "floor" price under which no award would be made at the time under consideration. All awards were made during a period of tight inventories and rising prices; thus prices received were advantageous to the Government to the extent that the revenue target was achieved well within the bounds of the 7 million barrels authorized by Congress for sale (which implied a price of $14.28 per barrel to produce the target $100 million revenue).

Question: If further sales were to be held, what changes, if any, would you make in the sales process?

Answer: For any further non-emergency sales of SPR crude oil, the Department of

Energy would request the Defense Fuel Supply Center to continue as sales agent, using the same open continuous solicitation and negotiation process. This process, conducted as it is on a bi-weekly basis, would continue the use of the Center's market expertise and sustained interaction with industry to obtain fair and reasonable prices on terms consistent with industry's own purchase, delivery scheduling and payment cycles.

Life Extension Program

Question: The SPR has a 7 year life extension program to replace or upgrade major systems which are reaching the end of their design life. This program should extend the life of the facilities to the year 2025. Please describe your Life Extension Program for the Strategic Petroleum Reserve

Answer: The objective of the Life Extension Program is to replace critical systems and equipment which have deteriorated and become obsolete with age in order to maintain the SPR's reliability and availability necessary to assure its mission capability and extend the useful life of the SPR's facilities and drawdown systems through the year 2025. The Life Extension Program provides for replacement of deteriorated site and cavern piping, replacement and standardization of pumps and motors, replacement and standardization of cavern and manifold valves, replacement of electrical switchgear and cables, motor control centers, and distributive control systems, rehabilitation or installation of brine disposal wells for brine disposal, and replacement, repair and for lining of deteriorated offsite pipelines. The total estimated cost for the seven year program is $351,000,000.

Question: What year of the 7-year program are you funding in fiscal year 1997?

Answer. Fiscal year 1997 will be the fourth year of the Life Extension Program.

Question: How much money is in the request for this program in fiscal year 1997? How does that compare with fiscal year 1996?

Answer: The FY 1997 request for the Life Extension Program is $25,655,000. In fiscal year 1996, the requested amount was $64,033,000.

Question: For the record, please provide a brief description by year of the life extension program at each SPR facility, along with cost estimates.

Answer: The attached listing provides life extension projects, by year and by site, which support the FY 1997 Budget Request.

LIFE EXTENSION PROGRAM PROJECTS

Bryan Mound Life Extension Projects

1994 - Procurement & installation of heat exchangers (20 units)
- Procurement of flow control valves

- Procurement of new site control system

1995 - Installation of new site control system
- Procurement of new pumps/motors, cavern instrumentation & isolation valves
- Installation of new cavern piping and instrumentation
- Installation & reconfiguration of pipe racks and cable trays

1996 - Replacement of drawdown pumps/motors
- Replacement & reconfiguration of site piping
- Upgrading of site electrical systems
- Replacement of brine pond (with steel tank)

1997 - Modification of crude oil pump systems
- Automate seal flush / bearing cooling system

West Hackberry Life Extension Projects

1994 - Procurement & installation of heat exchangers (6 units)
- Procurement of flow control valves
- Procurement of new site control system

1995 - Installation of new site control system
- Procurement of new pumps/motors, cavern instrumentation & isolation valves
- Installation of new cavern piping and instrumentation
- Installation & reconfiguration of pipe racks and cable trays
- Lining of brine disposal pipeline to disposal wells

1996 - Replacement of drawdown pumps/motors
- Replacement & reconfiguration of site piping
- Upgrading of site electrical systems
- Upgrading of RWIS pumps and motors
- Replacement of brine pond (with steel tank) & flush water system

1997 - Modification of crude oil pump systems
- Replacement of electrical system to RWIS
- Automate seal flush / bearing cooling system

Bayou Choctaw Life Extension Projects

1994 - Procurement & installation of heat exchangers (2 units)
- Procurement of flow control valves
- Installation of cable trays and duct bank system (A)

1995 - Replacement of deteriorated on-site piping

- Lining of brine disposal pipeline to disposal wells
- Installation of cable trays and duct bank system (B)

1996 - Procurement of new site control system
- Procurement of new cavern instrumentation & isolation valves

1997 - Installation of new site control system
- Replacement of uninterruptable power supply
- Automate seal flush / bearing cooling system

Big Hill Life Extension Projects

1995 - Procurement of flow control valves

1996 - Procurement of new site control system
- Procurement of new cavern instrumentation & isolation valves

1997 - Installation of new site control system
- Installation of new cavern piping and instrumentation
- Upgrading of site electrical systems
- Procurement of new pumps/motors
- Replacement of uninterruptable power supply
- Automate seal flush / bearing cooling system

LIFE EXTENSION PROGRAM OBLIGATION PLAN
($000)

	FY 1994 (Actual)	FY 1995 (Actual)	FY 1996	FY 1997	FY 1998	FY 1999	FY 2000	TOTAL
Design	$6,316	$10,960	$15,017	$12,770	$15,243	$6,123	$2,205	$68,634
Site Construction								
Bryan Mound	12,386	17,237	25,702	2,280	2,212	7,300	6,903	74,020
West Hackberry	10,548	24,240	33,357	3,700	1,425	16,100	7,771	97,141
Bayou Choctaw	3,186	3,047	2,725	815	15,665	15,790	13,828	55,056
Big Hill	318	1,511	3,565	6,090	20,670	13,900	10,102	56,156
TOTAL	$32,754	$56,995	$80,366	$25,655	$55,215	$59,213	$40,809	$351,007

Notes:

1 FY 1995 Obligations include FY 1994 Carryover of $10,532

2 FY1996 Obligations include FY1995 Carryover of $16,333

ADDITIONAL COMMITTEE QUESTIONS

Hot and Gassy Oil

Question: Since fiscal year 1994, we have been funding a program to remove the excess heat and gas from 145 million barrels of oil at four of the five SPR storage sites. This project is currently scheduled to be funded through fiscal year 1998. What is the status of your efforts to remove the excess heat and gas from the oil at several of the SPR storage sites?

Answer: In early 1995, heat exchangers were installed at the Bryan Mound, West Hackberry and Bayou Choctaw sites to allow for cooling the oil at the time of a drawdown. Additionally, heat exchangers are scheduled to be installed at the Big Hill site in 1999. In regard to removing the excess gas, the Reserve commenced degassing the approximately 149 million barrels of affected oil in July 1995 and is scheduled to complete in April 1998. To date, a total of 43 million barrels have been degassed and all degassing activities have been completed at the West Hackberry site

Question: What amount of money is included in the budget request for this program in fiscal year 1997?

Answer. The amount of money included in Fiscal Year 1997 budget for oil degasification is $4,469,000.

Question: Will fiscal year 1998 be the final year of funding for the program as reported last year? If not, please explain any changes?

Answer: Fiscal Year 1998 is the final year of funding for degasification. SPR initiated degassing in July 1995 and is scheduled to complete degassing in April 1998. The final heat exchangers are scheduled to be installed at the Big Hill site in 1999.

Question: Will the problem be permanently remedied?

Answer: The installation of the heat exchangers at the various sites should provide a permanent remedy to the excess heat problem, and, based on our analyses to date, we are confident that the excess gas problem has been resolved through at least 2005.

Question: To what extent will we have to do this all over again in the future?

Answer: At this time, we are uncertain as to whether further degassing will be required beyond 2005. The need will be dependant on the future rate of gas intrusion at the various affected caverns and what other less costly actions, such as abandoning caverns with the highest gas in-flow and enlarging other caverns, could be taken. The Department is continuing to analyze the matter - both as to the potential for a similar future problem and, should it occur, what is the optimum long-term solution.

QUESTION SUBMITTED BY CONGRESSWOMAN BARBARA VUCANOVICH

Clean Coal Technology

Question: One of the projects in the Clean Coal Technology program is the Pinon Pine Project, a nominal 100 megawatt Integrated Gasification Combined Cycle powerplant. I would appreciate for the record DOE's analysis of the Pinon Pine Project to date as well as your plans for the next few years with regards to this project.

Answer: The Sierra Pacific Power Company's Pinon Pine Integrated Gasification Combined Cycle (IGCC) Clean Coal Technology project is currently in the final engineering and construction phase. The project is progressing well and is on time and within the present budget. Most major equipment have been erected or is on the premises. The present plans are to initiate plant start up before the end of 1996, probably in the last quarter. Start up and equipment shakedown should be completed by February 1997. The project will then enter the operations phase which is scheduled to be completed in the middle of 2000. The Pinon Pine Project is the only IGCC project that will demonstrate hot gas clean-up at full capacity. When plant operations commence later this year, it is expected to be one of the show-case projects for advanced power generation applications.

QUESTIONS SUBMITTED BY SIDNEY R. YATES

Strategic Petroleum Reserve

Question: Can you please explain the increase for the Strategic Petroleum Reserve in FY1997?

Answer: The increase from $0 new budget authority in FY 1996 to $221 million new budget authority in FY 1997 reflects financing of the FY96 program via transfer of funds from the SPR Petroleum Account ($187 million) and the sale of oil ($100 million), therefore requiring no new budget authority. The FY 1997 program requires new budget authority because balances in the SPR Petroleum Account have been diminished to a level which can only support the continuation of fixed terminating costs, quality assurance activities and oil acquisition/sales support.

Question: What amount of funding is needed to complete the degasification, the Weeks Island decommissioning efforts and to continue life extension and for the upgrading of the Reserve's infrastructure?

Answer: Funding requirements for these activities are as follows

	FY96	FY97	FY98	FY99	FY00
Oil Degas	16,528	4,469	919	0	0
WI Decomm	39,179	32,207	11,099	1,829	0
Life Extension	64,033	25,655	55,215	59,213	40,809

Question: In your testimony regarding the Strategic Petroleum Reserve you stated that some "facilities are underutilized", what do you mean by this? Which facilities are you referring to?

Answer: At the Strategic Petroleum Reserve some of the storage space in the salt caverns is underutilized because the inventory of oil is below the capacity of the caverns, so that those caverns are simply holding salt brine while awaiting oil. Since, there are no plans to acquire any oil for the Reserve by the United States at least through the year 2002, the approximately 85 million barrels of cavern space at the Big Hill and West Hackberry sites is underutilized.

In addition, virtually all of the off site pipelines owned by the Government which connect the storage sites with commercial terminals and the Government owned St. James terminal are underutilized. These lines and the terminal are needed only when oil is moving in or out of the Reserve sites. Since no oil has been purchased since 1994, after the Weeks Island oil is transferred to Big Hill site, the only anticipated movements would occur during sales from the Reserve which occur only infrequently. The Department is proposing full time use of the pipelines and the terminal by leasing or selling the facilities providing that the Government has rights to their use during an emergency drawdown.

QUESTIONS SUBMITTED BY SIDNEY R. YATES

Naval Petroleum Reserve

Question: What "other development activities will be eliminated" in FY 1997?

Answer: Prior to passage of the sales legislation, the Naval Petroleum and Oil Shale Reserves (NPOSR) developed FY 1997 budget estimates based on continued operations and development. After passage of Public Law 104-106, NPOSR was required to reduce its budget on the basis of the impending sale. In order to meet the reduced funding level, development projects which would not provide a pay-off before the effective date of the sale were eliminated. The following is a list of the projects eliminated:

NPR-1

Operations & Maintenance - 174 remedial workovers
    Development Drilling - 19 Shallow Oil Zone wells
    - 38 Stevens Zone wells
    Exploration Drilling - 2 Stevens Zone wells
    - 1 Carneros Zone well
    Development Facilities - cryogenic expander plant
    produced water injection improvements
    reservoir development surface facilities
    integrated communications network

NPR-3

Development Facilities - natural gas huff and puff project
3 steam drive pattern modifications

NOSR-3

Gas Protection - drilling of 6 offset wells
communitization of 6 wells

QUESTIONS SUBMITTED BY CONGRESSMAN SIDNEY R. YATES

Argonne National Laboratory

Question: Please provide for the record a summary table detailing how Argonne National Laboratory funding is treated in your FY 1997 request for Fossil Energy.

Answer: The following chart provides estimated funding for Argonne National Laboratory in the Fossil Energy FY 1997 budget request:

($ in thousands)

Program	FY 1997 Request
Advanced Research and Technology Development	$ 1,145
Advanced Clean/Efficient Power Systems	250
Natural Gas Research	500
Fuel Cells	920
Oil Technology	500
Fuels Program	300
Total	$ 3,615

Statement of George B. Breznay
Director, Office of Hearings and Appeals
Department of Energy
to the
Committee on Appropriations
Subcommittee on Interior and Related Agencies

Mr. Chairman, Members of the Committee, thank you very much for this opportunity to provide for the record of the proceedings of the U.S. House of Representatives Subcommittee on Appropriations of the Committee on Interior and Related Agencies this statement concerning the operations of the Office of Hearings and Appeals of the U.S. Department of Energy.

The Office of Hearings and Appeals (OHA) is responsible for conducting hearings and issuing decision of the Department with respect to any adjudicative proceedings which the Secretary may delegate, other than those within the jurisdiction of the Federal Energy Regulatory Commission. In this role, during the course of the past decade, OHA has considered and resolved nearly 230,000 submissions. These include:

Appeals of Freedom of Information Act and Privacy Act matters.

Applications for Exception involving regulatory requirements of the DOE Energy Information Administration and many other offices within the Department.

Reviews of matters concerning the denial or withdrawal of security clearances which require that OHA hold evidentiary hearings.

Contested complaints filed under the DOE Contractor Employee Whistleblower Protection Program.

Appeals filed by domestic utilities concerning their special assessments for payments into the Uranium Enrichment Decommissioning and Decontamination Fund under the Energy Policy Act of 1992.

Reviews of Payments-Equal-to-Taxes determinations under the Nuclear Waste Policy Act of 1982, as amended.

Enforcement and related proceedings, which fund the OHA refund program.

OHA has been involved in the distribution of more than $4.4 billion in oil overcharge monies. More than 225,000 refund claims have been resolved and $1.1 billion has been refunded to individuals, firms, schools, hospitals, federal, state and local governments. $2.5 billion in crude oil overcharge funds has been distributed to the states and the federal government. Pursuant to the Petroleum Overcharge Distribution and Restitution Act of 1986, $418 million has been provided to offset the cost of energy conservation programs, monies that would otherwise have been appropriated from federal tax revenues.

All of these determinations have been made with an average staff of about 85 persons, and with an annual appropriation that never exceeded $6.7 million. The fact that the very, very small number of these determinations that are contested have virtually all been upheld upon appeal attests that very high standards of quality and an attitude of scrupulous fairness were maintained by OHA, even while this tremendous volume of work was accomplished.

This is a very fine record of which we are all justifiably proud. However, much of the work of OHA remains to be done.

Last year the Subcommittee identified funding only for OHA activities related to petroleum overcharges. Other OHA work within the jurisdiction of the Subcommittee, such as the adjudication of Applications for Exception from the informational requirements of the DOE Energy Information Administration and of Freedom of Information Act appeals from determinations issued by programs funded by the Subcommittee, were not funded. These activities have previously required annual funding of nearly $500,000.

OHA is working within the Department to develop a method of funding its non-refund activities, but it has not been easy. It appears that OHA will receive $1.2 million in FY 1996 and $2.0 million in FY 1997 from one of its principal customers, the Office of Non-Proliferation and National Security, which originates actions to suspend security clearances. OHA estimates that it will need at least an additional $500,000 in FY 1996 to fund its other activities. However, the customers for the remainder of OHA functions are diverse and not easily identifiable, and consequently a method for charging for such services — as suggested by the Subcommittee — has not yet been developed. The difficulty of charging Departmental elements based upon the amount of work we do for them is illustrated by Freedom of Information Act appeals, where a single decision on appeal may involve determinations made by several different DOE offices.

In view of OHA's situation, staff has been reduced by about 25 percent so far, with further reductions coming this fiscal year and in FY 1997. This has reduced OHA's ability to perform its mission and delayed the conclusion of the refund program. OHA may be able to process about 3,700 refund cases during FY 1996, and projects that it will be able to resolve 2,900 cases in FY 1997. This is down from the level of 6,073 cases that were resolved, with higher funding and staffing levels, in FY 1995. The decline in the number of cases projected to be processed with a similar appropriation between FY 1996 and FY 1997 reflects (1) the use of $540,000 in carryover of unobligated balances in FY 1996 that will not be available in FY 1997, (2) the inability, because of the Department's hiring freeze, to replace inexpensive analysts in grades GS-7 to GS-9, with the result that many routine refund cases must now be processed by attorneys in grades GS-11 to GS-13, and (3) the fact that harder, more time consuming cases tend to be deferred to the end of the refund program.

At the same time, as noted, OHA will have insufficient funds for its continued operations through the remainder of the 1996 fiscal year if additional monies are not located. Because OHA's FY 1995 year-end unobligated balances will be exhausted by the end of this fiscal year, the office's funding situation would be much more serious in FY 1997.

Office of Hearings and Appeals
Department of Energy
Additional Committee Questions

Reimbursement for Non-Overcharge Cases

Question: What are you doing to comply with the Committee's direction to obtain reimbursement from other DOE components for those programs that are not related to the processing of petroleum overcharge cases?

Answer: The Office of Hearings and Appeals (OHA), in consultation with the DOE Chief Financial Officer, has obtained funds, $1.2 million in FY 1996, from its principal "customer," the Office of Non-Proliferation and National Security, which originates action to suspend a security clearance. That action can lead to Personnel Security Hearings before OHA Hearing Officers, with which OHA is extensively involved However, the customers for the remainder of OHA functions are diverse and not easily identifiable, and consequently, a method for charging for other services is not easy to devise. For example, a single Freedom of Information Act determination that is upon appeal may involve determinations made by many DOE Offices. Moreover, from many field offices, only one or two determinations may be appealed each year. Exacerbating this situation is the fact that other departmental elements did not include provision for OHA funding in their FY 1996 budgets. In addition, the House Interior and Related Agencies Appropriations Subcommittee allocated funding in 1996 only for OHA refund work, and not for the other functions that fall within the purview of the Subcommittee. These functions include Applications for Exception from the requirements of the Energy Information Administration, Freedom of Information and Privacy Act appeals involving decisions of entities which obtain funding via to the Subcommittee, and support for residual compliance litigation activities stemming from the prior mandatory petroleum regulations. OHA projects that unless an additional $500,000 is located from other departmental elements, it will run out of funds before year end.

In any event, OHA is not now in a position to operate as if it were a business able to charge for its services by the case. Cases are not received on a regular, predictable schedule. Therefore to operate on a case-by-case basis would require OHA to have a fund of working capital (or "retained earnings") to enable it to maintain (pay) its staff during times between cases. The unobligated balances that might have formed such a fund have been fully expended on FY 1996 operations.

Question: For the record, please provide a breakout of programs for which you will receive reimbursement. Include details by DOE component for each program.

Answer: For Personnel Security Hearings, OHA has received $1.2 million from the Office of Non-Proliferation and National Security, to defer costs of this function. No determination has yet been made with respect to other programs that may provide reimbursement for OHA services.

Status of Programs

Question: What is the status of each of your programs which deals with petroleum overcharges? For each program, how many cases remain unresolved. How many cases were resolved in fiscal year 1995; how many do you expect to resolve in fiscal year 1996 and in fiscal year 1997: When do you project each of these programs will be completed?

Answer: The last remaining petroleum overcharge compliance case was completed in 1996. It is possible, however, that additional cases may be remanded to OHA pursuant to continuing court litigation. OHA resolved six enforcement cases during FY 1995. Pending court litigation will continue to draw upon OHA resources.

OHA resolved 6,073 refund cases in FY 1995. OHA expects to resolve approximately 3,700 refund cases in FY 1996 and to have a year-end inventory of 5,700 refund cases. Inventory as of March 31, 1996, was 6,394 refund cases. OHA expects to resolve approximately 2,900 cases in FY 1997. OHA expects to conclude the refund program in FY 2000.

Impact of Budget Reductions

Question: What would be the impact of absorbing your fixed cost increases in fiscal year 1997; that is, no increase to the 1996 funding level?

Answer: OHA seeks an appropriation in FY 1997 of $2.725 million. This is only two percent above the funding approved in FY 1996. However, there will be no unobligated balances remaining at the end of this year to help fund refund work in FY 1997. Thus, in real terms, even under the current OHA funding request for FY 1997, there will be a substantial decrease in funding available for processing refund cases. Under these circumstances, any additional reduction in funding would further impact adversely upon OHA's ability to process refund cases, i.e., it would lengthen the time necessary to issue refunds.

Question: What would be the impact of a 10% reduction to the fiscal year 1996 funding level in fiscal year 1997?

Answer: A ten percent funding reduction in FY 1997, on top of the 52% funding reduction appropriated in FY 1996, would severely restrain OHA's ability to consider petroleum overcharge refund cases. This would delay significantly the receipt of refunds by many individuals, firms, and governmental entities throughout the nation and postpone the conclusion of the refund program, and would reduce the amount of funds that would be made available pursuant to the Petroleum Overcharge Distribution & Restitution Act in the following year.

Petroleum Overcharge Distribution & Restitution Act

Question: What was the actual amount of petroleum overcharge funds which was made available in fiscal year 1996 to offset the cost of energy conservation programs? Please explain any difference between the estimate assumed in the budget and the actual amount available.

Answer: On November 8, 1995, OHA issued a determination that $19.8 million was excess and not needed for direct restitution. It is OHA's understanding that the Department may not yet have made these overcharge funds available due to the lack until very recently of an appropriation for the relevant programs.

The estimate issued in March 1995 was $8.7 million. Final determinations issued in November of each year may differ significantly from estimates made the prior March, because intervening factors may indicate that a different amount of funds is needed for direct restitution. Before OHA can estimate the amount of petroleum overcharge funds that are "in excess" of the amount needed for direct restitution to injured persons, it must first makes a conservative determination of the amount that will be required to pay each potential claim. As time goes on, the information required to make these determinations becomes increasingly certain. This results from several factors: (i) filing deadlines expire, barring the submission of new refund cases; (ii) more and more of the existing claims are adjudicated; (iii) large disputed claims are litigated to finality; and (iv) the amount of reserves that must be retained to pay major claims in litigation can be correspondingly reduced. The difference between the estimated and final amounts of "excess funds" is the result of more information being available when the final determination was made. Since the time OHA's PODRA estimate of excess funds for FY 1996 was issued in March 1995, receipt of new refund applications has slowed, we have worked off more existing cases, and some major disputed claims have been litigated to finality. As a result, we were able to determine with confidence that more funds would not be needed for direct restitution than was estimated six months earlier.

Question: Please explain the difference between the estimate of petroleum overcharge offset funds in fiscal year 1997 and the estimate for fiscal year 1996. Why is there such a large increase?

Answer: As indicated above, each estimate of funds that can be made available pursuant to PODRA must depend upon OHA's assessment at the time the estimate is made of the amount that will be necessary to pay potential claims. The large increase in the estimate OHA issued in March 1996 of the amount that will be available in FY 1997 ($29.7 million) is due primarily to successful conclusion of the Mullins litigation concerning the Texaco refund proceeding. This freed up a large amount of money in the Texaco escrow account. If sufficient amounts are not appropriated to fund OHA's operations in the next few years, the speed at which this process runs will decline, the amounts of excess funds made available each year will be reduced, and final resolution of the oil overcharge refund program will be delayed.

Statement of Jay E. Hakes
Administrator, Energy Information Administration
Department of Energy
Before the
Committee on Appropriations
Subcommittee on Interior and Related Agencies

OVERVIEW

The Energy Information Administration (EIA) is the leader in providing high-quality, policy-independent energy information to Government, industry, and the public, in a manner that promotes sound policymaking, efficient markets, and public understanding. While an integral part of the Department of Energy, EIA is mandated to maintain a policy-neutral position. EIA was established by Congress as an unbiased source of energy information and analysis.

In accordance with Section 205 of the 1977 Department of Energy Organization Act, EIA collects, interprets, analyzes, and disseminates information on energy reserves, production, consumption, distribution, prices, technology, and related international, economic, and financial matters. EIA produces reports with statistical time series, projections of near- and mid-term future energy trends, and analyses of topical energy issues. On a reimbursable basis, EIA directly provides custom energy data, analyses, and data processing support to other Department of Energy offices and other Federal agencies.

The National Energy Information System contains the operational elements of the EIA. The Oil and Gas program develops, operates, and maintains the statistical information systems for the collection, processing, and analysis of data on petroleum and natural gas reserves, production, refining, distribution, marketing, and prices. The Coal, Nuclear, Electric, and Alternate Fuels program performs statistical and analytical functions for its respective fuels markets. The Energy Markets and End Use program maintains energy statistical and analytical information systems for energy end use, price, supply and demand balances, and economic, international, and financial matters. The Integrated Analysis and Forecasting program produces mid-term forecasts for domestic and international energy markets. The ADP Services program provides computer processing support to EIA, other Departmental offices, the Federal Energy Regulatory Commission, and other Federal agencies. The Information Services program performs final editorial and graphics preparation and public dissemination activities for all EIA information products. The Statistical Standards program provides coherent and credible strategies for information collection, analysis, and forecasting; develops processing and documentation standards; and coordinates standard definitions. Program Direction provides salaries, benefits, travel, and training for EIA personnel and funds administrative overhead.

USES OF EIA PRODUCTS

EIA data are a recognized and integral statistical source for customers in Federal, State, and local governments, private industry, the media, and the general public. The Bureau of Economic Analysis uses EIA's petroleum data for the Gross Domestic Product accounts. The Bureau of Labor Statistics uses our energy price and sales volume data to verify and re-weight the Producer Price Index, the Consumer Price Index, and to calculate foreign crude oil price indexes. EIA data on coal, electric power, and petroleum are used by the Environmental Protection Agency for developing the National Allowance Data Base and associated calculations. EIA analyses of waste water treatment costs associated with offshore oil and gas production also are used by the Environmental Protection Agency. The Department of Commerce uses jet fuel retail price and supply data in its projections regarding domestic and international tourism. EIA`s Federal Energy Regulatory Commission uses EIA data and analyses in conducting their statutory functions. The Commercial Buildings Energy Consumption Survey serves as a data collection vehicle for the Bureau of the Census, obtaining information on expenditures for building alterations and repairs.

EIA also supplies data to the Commodity Futures Trading Commission, the Council of Economic Advisors, the Office of Management and Budget, the Treasury Department, the Congressional Budget Office, and the General Accounting Office. The Nuclear Energy Agency of the Organization for Economic Cooperation and Development relies on EIA for historical data and projections of nuclear electricity generation, associated nuclear fuel cycle requirements, and electricity generating costs. The International Energy Agency uses EIA's information and analyses on energy sources as the official statistics to describe the U.S. energy situation in international forums and publications. State Government offices use EIA's price forecasts for assessments of proposed energy taxes and alternative energy strategies, and for ongoing analyses of supply, demand, and fuel substitution.

EIA's data, analyses, and forecasts are used extensively by trade associations, including the American Petroleum Institute, the Independent Petroleum Association of America, the American Gas Association, the National Coal Association, the Edison Electric Institute, and the American Public Power Association. EIA is a major source of energy information for the media, including Forbes, Business Week, New York Times, Los Angeles Times, Wall Street Journal, Washington Post, Reuters News Services, a broad spectrum of trade journals and newsletters, plus national and local radio and television networks.

PERFORMANCE INDICATORS

Since its creation in 1977, EIA has been involved in performance measurement This activity has both an internal and an external element. Internally, EIA conducts audits of all of its data collection systems and models on a cyclical basis to ensure the existence and accuracy of documentation, the efficient operation of data systems and models, and the accuracy of results. Implementation of recommendations resulting from this audit program provides for continual improvements in the quality of systems and models. EIA also has instituted a program to collect more frequently performance statistics on the operations of its systems that collect data. Under this program, automated data systems keep track of errors and anomalies that occur during their operations, enabling EIA to identify problem areas and take steps to correct them.

EIA has also developed its own set of performance measures. We are currently participating in a pilot project sponsored by the Office of Management and Budget as part of the Government Performance and Results Act. Our project is titled "Vision 2000: Improving EIA Products and Services," and involves the development of performance goals and objectives and measurement of performance toward those goals. An agency-wide committee developed a set of 14 performance criteria for EIA as a whole. The organization is now implementing these measures, collecting information where it is available, and planning for collection where it is not available. There is solid information on customer satisfaction, employee attitudes, citations and uses and counts of products. Agency-wide decisions about areas where we need to improve concentration of effort have been made based on this information. Currently, information is being gathered and summarized on timeliness and accuracy, innovations, and productivity.

Some information on performance measures will be collected by one specific office or by surveys, including customer satisfaction and employee attitudes. Other information will be collected by individual offices and aggregated to an agency total. The Committee now is preparing an interim report to document progress toward measurement. Actual numbers and counts exist in some cases, such as training, employee attitudes, customer satisfaction, and EIA products, that can serve as baseline values. In other cases, EIA is working to develop and disseminate data collections forms. For customer suggestions, EIA expects to move from a paper form to an electronic version that is under development now as part of a customer database. Two performance measures (cost of survey operations and resources used by the agency by project) require complicated data collections, and have yet to be developed. EIA has begun an activity-based costing effort that will collect information about the costs of identified processes and activities. This information will allow EIA to describe the resources needed to accomplish our mission, not by office or object class, but by actual activity. EIA expects to make significant progress in collecting performance measures information in the next year.

FISCAL YEAR 1997 BUDGET REQUEST

The FY 1997 Congressional budget request for EIA is $66.1 million, 9 percent below the FY 1996 level of $72.4 million and 22 percent below the FY 1995 appropriation of $84.6 million. The FY 1997 total program is $70.9 million, comprised of $66.1 million in direct appropriations and $4.8 million in activities to be conducted on a reimbursable basis with the Office of Energy Efficiency and Renewable Energy. The total EIA program (including reimbursable activities with Energy Efficiency) is 16 percent below the FY 1995 level and 2 percent below the FY 1996 level provided by Congress. These funds are required to support the core EIA data and modeling activities needed to set energy efficiency program needs and measure program results. This reimbursement includes the following programs: efficiency and renewables data collection and analysis, end-use energy consumption surveys, greenhouse gas data collection studies, mid-term energy demand modeling, and integrated end-use energy data compilation.

With this reimbursement from Energy Efficiency, EIA's funding level will remain relatively unchanged between FY 1996 and FY 1997. During the course of these 2 years compared with FY 1995, however, the depth and scope of EIA's traditional energy program will be significantly altered due to the prioritization of programs within resource availability, as follows: Elimination or reduction in the scope of 10 publications, such as the elimination of the hardcopy version of the *Petroleum Marketing Annual* (available electronically); reduction of mid-term forecasting and related analysis by 35 percent, eliminating 15 modeling projects within the National Energy Modeling System and causing reductions in interactive access, customer support, and supply analysis capabilities; elimination or reduced frequency of 9 data collections in the areas of manufacturing facility fuel switching capability, electricity generation, petroleum refining and sales, reducing the ability to accurately portray current market dynamics; and elimination of computer disaster recovery capability, which had served as a back-up system for computing in case of emergencies such as a power failure.

EIA will produce approximately 250 reports and analyses in FY 1997 covering a variety of energy issues. Approximately 300,000 inquiries and requests from customers for energy information will be given. The use of the Internet is currently at pace of 700 unique users per day and 14,000 file downloads per month, and those rates are part of a rapid upward trend. EIA will continue to strive to maintain its position as the nationally and internationally recognized source of energy information through projects such as the following: Putting all publicly available data on an Internet EIA Home Page; providing a periodic CD ROM (InfoDisc) of the latest EIA information, data, publications, and models; maintaining the product and service mix up-to-date by assessing customer requirements through interactions such as user forums and customer surveys; evaluating and utilizing dissemination processes (for example, the media) to maximize effectiveness in reaching various customer groups; improving access to its information by providing clearly written press releases and highlights and user-friendly, intuitive graphics; and using well-defined performance measures to track progress and identify areas for improvement.

EIA Federal staff levels are expected to decline by 21 percent between FY 1995 and FY 1997 in support of the Department's Strategic Alignment Initiative. End-of-year FTE targets for this period will decline from 483 to 381 (EIA's total organizational staffing target is 384 FTEs, with 3 FTEs funded by the Nuclear Waste Disposal Fund). Costs for salaries and benefits are rising over this period because this downsizing effort incurs costs for voluntary buyouts and reductions-in-force. The end-of-year target of 427 FTEs in FY 1996 is expected to be achieved through attrition and buyouts; buyout costs are estimated at $875,000. The end-of-year target of 381 for FY 1997 is expected to be met through attrition, buyouts, and a reduction-in-force; costs for buyouts and reduction-in-force are assumed to be $1,125,000.

The contribution of government statistics to the stability of financial markets is often overlooked. The role of EIA became surprisingly apparent with the vast number of inquires about the availability of energy statistics during the recent shutdowns. The number of EIA customers is exploding rapidly, largely because of the revolution in electronic dissemination. This trend ought to be encouraged, not discouraged. EIA has another role, central to DOE's mission and beyond the scope of other statistical agencies: to provide timely information during times of an energy emergency. A rapid downsizing threatens this contingency capability during a time when customers do not see the potential of energy shortages.

ADDITIONAL COMMITTEE QUESTIONS

ENERGY INFORMATION ADMINISTRATION

Reimbursable Funds

Question: You have proposed to fund $4.8 million program on a reimbursable basis, using funds from the Office of Energy Efficiency. What individual projects are involved in this proposal and what is the funding level for each of these projects in fiscal years 1996 and 1997?

Answer: The $4.8 million in reimbursable funding in fiscal year 1997 from Energy Efficiency is required to support the core EIA data and modeling activities needed to set energy efficiency program needs and measure program results. The following are the programs involved and their contract costs: efficiency and renewables data collection and analysis ($0.6 million in each year for 1996 and 1997); residential, commercial, and industrial energy consumption surveys ($3.0 million in each year); greenhouse gas data collection studies ($0.8 million in each year); mid-term energy demand modeling ($0.2 million in each year); and integrated end-use energy data compilation ($0.2 million in each year).

Question: These programs have traditionally been funded by EIA; why is it appropriate to shift the funding responsibility for these programs to Energy Efficiency in fiscal year 1997?

Answer: The Office of Energy Efficiency is a major user of EIA data and analysis for the purpose of planning for and evaluating the results of government-sponsored programs in the areas of energy conservation, use of renewable sources of energy, and reductions in greenhouse gas emissions. Sharing in the cost of producing objective data from an independent source is an appropriate course of action to assure that the best information is available upon which to base funding decisions in a time of scarce resources. The continuation of energy statistical series and analyses related to these areas as well as the many other energy fuel areas relied upon by a broad spectrum of users in government, industry, and the general public requires a total funding level of $70.9 million.

Question: If the reimbursement from Energy Efficiency is not forthcoming, what impact will it have on EIA's programs? Will these programs not be done? Will funds be shifted from other EIA programs to make up the shortfall?

Answer: Without the reimbursement from Energy Efficiency, EIA will sustain a 22-percent reduction in its budget from the FY 1995 baseline. This is a significant reduction and it would have a severe impact on the nation's energy statistical series. The Administration and the Congress appear to have reached agreement that statistics are important to the economic well-being of the country as reflected in the fiscal year 1996 funding of the 11 principal Federal statistical agencies. Total funding for these agencies remained level between fiscal year 1995 and 1996, with 5 percent being the next greatest reduction for any single agency compared to EIA's 14-percent reduction.

We do not believe it would be appropriate to discontinue those programs proposed for funding through reimbursements from Energy Efficiency. These programs are an important component of EIA's energy information portfolio that we believe our customers would be in favor of retaining. We would consult with our customers to obtain their views on priorities of all programs before making any further program reductions. Based on usage statistics, we would expect to make funding reductions in all major program areas if the EIA budget is reduced to $66.1 million without reimbursements from Energy Efficiency.

Downsizing of Forecasting and Analysis

Question: What have you done to comply with Congressional direction to downsize your forecasting and analysis functions, consistent with the funding recommendations in the fiscal year 1996 conference agreement? Please provide specific project level funding details for the record?

Answer: The Integrated Analysis and Forecasting (IAF) program is responsible for EIA's mid-term forecasting and policy analysis model, the National Energy Modeling System (NEMS), and for providing analysis of relevant policy issues. The fiscal year 1996 budget for the IAF program was reduced by 37 percent (almost $5 million) from its fiscal year 1995 level, 10 percent in FTE costs and about 70 percent in contractor resources. The following are some specific areas of reduction (see analysis and forecasting eliminations on the table attachment under Program Savings section for funding details):

- Model enhancements were eliminated, except for those that are essential to maintaining relevance to current energy issues. Examples include the cancellation of testing and integration of the International Petroleum Market Module, the endogenous representation of power plant life extension and repowerment, and the analysis and technology characterization of dispersed renewable technologies. Work in analyzing electricity restructuring was reduced in scope.

- A number of NEMS component models will be simplified to reduce operating and maintenance costs. Principal models among these are the Coal Market Module, which will have fewer regions and coal types, and the Industrial Market Module, which will have a more aggregated representation of the non-intensive energy industries.

- The uncertainty analysis and modeling effort related to how uncertainty in model inputs/parameters affect model outputs has been terminated.

- The reduced form modeling project to develop simple approximations to large modules when great precision is not required in the analysis was terminated.

- The PC-NEMS program was scaled back to include, if time and resources permit, only the demand models, which have the most users of the NEMS component models and are simpler to convert to the PC than the supply models.

- A Model Developer's Report for NEMS was canceled.

- EIA funding for Stanford University's Energy Modeling Forum was terminated.

- The period between data updates to model parameters has been extended from annual updates to up to 3-year updates, depending on the variable; thereby reducing operating costs.

- Out-sourcing of model development and data updates was reduced by 70 percent.

Question: To what extent is your forecasting and analysis budget contingent on reimbursements from other Departmental components?

Answer: Traditionally, none of EIA's formal forecasting budget has been contingent on reimbursement from other Departmental elements. EIA's forecasting budget has been occasionally supplemented by other Government agencies when specific modeling features or analysis are required that go beyond our budgeted plans for modeling, forecasting and analysis. For example, at the end of fiscal year 1995, the Environmental Protection Agency provided EIA with $300,000 to investigate technological areas in the residential, commercial, and electric utility sector. These modeling areas were jointly agreed to by EIA and EPA in a Memorandum of Understanding. In fiscal year 1996, the policy office within the Department provided EIA with $50,000 for macroeconomic support in the preparation for the negotiations of the Intergovernmental Panel on Climate Change to be held in Tokyo in 1997. In fiscal year 1997, forecasting related to energy demand and renewable supply, as well as analysis of greenhouse gases, will be funded with $310,000 from the Office of Energy Efficiency and Renewable Energy.

Working Capital Fund

Question: What expansion of services do you expect to receive from the Department through the new working capital fund?

Answer: We do not expect an expansion of services. With the working capital fund, the Department is expecting to increase the reliability, efficiency, customer orientation, and quality of services currently received. These potential benefits justify implementation of the fund and could enhance EIA's ability to fulfill its assigned mission more economically and effectively by having direct control over the goods and services purchased from Human Resources.

Question: How will the working capital fund result in administrative savings for EIA?

Answer: At this stage in the development of the working capital fund, we cannot determine if EIA will realize immediate and measurable dollar savings from its implementation. However, we were invited and have participated in the development of the business lines to be covered and the various pricing policies to be used by the fund. From this vantage point, the pricing polices being proposed appear to offer the potential for EIA to manage the EIA administrative expenses imposed by the Department that are not directly controllable currently.

Program Savings

Question: What savings are attributable to each of the products you have proposed to eliminate and will these savings occur initially in fiscal years 1996 or 1997?

Answer: The savings expected to result from project eliminations total $4.0 million and are expected to occur initially in fiscal year 1996 for all the projects. The remainder of the reduction between fiscal year 1995 and 1997, or $9.7 million, is planned to result from a reduced level of effort as well as process efficiencies throughout a wide range of projects. The attachment lists specific project eliminations and dollar savings for the $4.0 million.

FY 1996 EIA Project Eliminations	
Project Description	**Savings (thou $)**
Survey and Data Collection Operations:	
Ability to develop and implement new data collection systems	$36
Developmental funding of monthly petroleum supply and PEDRO systems	$250
Annual Oxygenate Capacity Report (Form EIA-819A)	$125
Contract support for design, development, maintenance, and documentation of international energy database	$105
Fuel switching data collection from Manufacturing Energy Consumption Survey	$133
Ad-hoc data collection capability during energy emergencies	$129
Assembled information on electric power plant total generation costs	$100
Contract support for updating forms clearance packages to deal with changes in the electric power industry	$75
Performance statistics for electric power surveys	$75
Schedule II of monthly electricity generation report containing financial information	$75
Some data elements from Annual Survey of Nonutilities (Form EIA-867)	$100
Uranium resource reporting on Uranium Industry Annual Survey (Form EIA-858)	$50
Subtotal	$1,253
Analysis and Forecasting:	
Motor gasoline imports analysis (after March 31, 1996)	$90
Petroleum supply analysis (after March 31, 1996)	$260
Analysis and technology characterization of solar PV and other non-grid renewables technologies	$60
International natural gas model	$35
International refinery module of National Energy Modeling System (NEMS)	$50
Nuclear life cycle analysis and modeling	$100
Price feedback on regional shares of economic growth and other economic parameters	$30
Reduced form and uncertainty analysis	$80
Revision of NEMS version of EPA's complex model for reformulated gasoline; database of refinery unit capacities; processing unit database	$30
Sensitivity testing of the refinery model to investment and transportation costs; implications of import/dependency patterns; technology penetration rates	$30
Seperate coal synthetics submodule in coal market module of NEMS	$50
Model Developers Report for the integrating module of NEMS	$25
Enhancements to transportation and buildings models and to elements of industrial model of NEMS	$30
Structural model enhancements for macroeconomic activity module of NEMS	$60

FY 1996 EIA Project Eliminations	
Project Description	**Savings (thou $)**
Analysis and Forecasting (continued):	
Technical assistant guide for Greenhouse Gas program	$250
All work on the Motor Vehicle Data System (alternative fuels) following in-house analysis of already-completed studies	$133
Contract support on commercial end-use estimates and peer review of Residential Transportation Energy Consumption System study of automotive fuel efficiency	$50
Contract support for data development and analysis support for industry-wide data, complementary to Financial Reporting System data, used in Performance Profiles and data in Foreign Direct Investment report; technical data support for one-time analysis agenda publications	$70
Contract support to planned fuel inventory models and natural gas supply and fuel substitution model and error analysis of short-term energy model	$75
Contract support for uranium market model	$130
Special studies for analyzing energy emergencies	$50
Subtotal	$1,688
Product Preparation and Dissemination:	
Annual Energy Outlook Supplement (assumptions and regional results will be provided on Internet)	$20
Foreign Direct Investment report (content will be moved to FRS Performance Profiles report to meet Congressional requirement)	$5
Planned enhancements to automated systems linkage for FRS EIA Electronic Highway application (contains EIA-28 data)	$28
Annual Supplement to Short-Term Energy Outlook; public information on STEO model performance	$43
Quarterly U.S. Energy Industry Financial Developments report	-0-
State Energy Data Report Summary	$5
State Energy Price and Expenditure Report summary	$5
State Energy Price and Expenditure Report, "Additional Measures" chapter	$10
Analysis reports for renewable energy	$100
Subtotal	$216
Technological Support:	
Computer support for energy emergencies	$100
Disaster recovery contract	$100
Low usage software	$50
Planned replacement of mainframe and environmental equipment	$350
Subtotal	$600

FY 1996 EIA Project Eliminations	
Project Description	**Savings (thou $)**
Support for External Organizations:	
Contract support for Stanford Energy Modeling Forum	$50
Contract support for Interior Department to compile information on coal mine methane emissions held by mining companies and Mining Safety and Health Administration	$100
Contract support for OECD to fund development of international emissions estimation methods	$50
Subtotal	$200
Total	**$3,957**

Survey Efficiencies

Question: How much money will you save from the increased use of computer-assisted interviewing in fiscal years 1996 and 1997?

Answer: One of the computer-assisted data collection techniques utilized by EIA is computer-assisted personal interviewing (CAPI). Using CAPI does not necessarily save money, but the final data will be of higher quality and more timely. EIA did not need to spend money for methodological and developmental work on CAPI, because we took advantage of work already done in this area by the Bureau of Labor Statistics, National Agricultural Statistics Service, and the Bureau of the Census. EIA will also save some money by programming the CAPI questionnaires for the Residential Energy Consumption Survey (RECS) in-house, instead of using contractors to do this work. A substantial, but essentially unmeasurable, savings will be in the quality of the RECS data collected using CAPI. The interviewer is more likely to ask the correct questions in the right order; respondent burden and fatigue is lessened because the questions can be tailored to specific respondents (for example, single family and apartment dwellers will be asked questions pertinent to their particular housing unit); some basic data edits can be performed and reconciled, if necessary, during the interviewing (this saves having to callback the respondent); data are already keyed and ready to be placed into the database (saving possible keying errors and time delays). The CAPI will next be used to collect data for the 1997 Residential Energy Consumption Survey.

Another means of automated data collection is expected to result in cost savings; though the amount cannot be estimated yet, as this program is in the very early stages. A number of EIA survey forms are submitted currently by mail or fax. An alternative method to fax requires the survey respondent to submit the form to a fax board in a designated computer with optical character reader (OCR) technology. Forms received by mail would be scanned into the fax board of the personal computer with a high-end scanner. The OCR highlights entries on the form which do not meet preset recognition levels and displays the relevant character or characters to an operator for final resolution. The data then would be uploaded to a designated relational database. Another method of computer assistance is used within the oil and gas program, where computer-assisted telephone interviewing techniques are used to survey weekly retail gasoline and diesel prices.

Question: What surveys will involve the increased use of sampling and what specific changes will be made to each of those surveys?

Answer: EIA is increasing the use of sampling technique and reducing the use of census technique in data survey work in order to cut costs; this approach involves surveying a smaller segment of a population. The Form EIA-23, "Annual Survey of Domestic Oil and Gas Reserves," will be reduced sharply every other year beginning in 1997. In 1996, about 3,800 companies from a frame of 23,000 companies were surveyed. In 1997, only the largest 150 companies instead of 3,800 companies will be surveyed, followed by a full survey in 1998. As of the January 1996 reporting period, the Form EIA-759, "Monthly Power Plant Report," is collected monthly from a cutoff model sample of plants with a generating capacity of 25 megawatts or more (approximately 360 utilities). Prior to January 1996, the Form EIA-759 data were based on a census (700 utilities) of operators of electric utility generating plants. The Form EIA-900, "Monthly Nonutility Sales for Resale Report," was instituted in January 1996. These data are also based on a cutoff model sampling approach consisting of about 380 companies that have facilities with a capacity of 50 megawatts or more. Both the Form EIA-759 and Form EIA-900 use the same multiple regression model for estimation.

Personnel

Question: Your budget assumes a reduction in force in fiscal year 1997. What programs and positions will be eliminated and what level of staffing is associated with each of those programs in fiscal years 1996 and 1997?

Answer: Based on our current projections, we plan to achieve our staffing target in FY 1997 through a combination of attrition, buyouts, and reductions-in-force. We are hopeful that our target will be achieved without resorting to a reduction-in-force, but we will not know that until after March 1997 when the buyout authority expires. We would do a reduction-in-force position analysis at that time should it prove necessary. In the meantime, retraining, reassignments, and restructuring based on reengineering are the tools we are using to assure that staffing needs are met. The following table shows the staffing levels by program for FY 1995 through FY 1997:

Program	FY 1995	FY 1996	FY 1997
Oil and Gas	130	116	103
Coal, Nuclear, Electric, and Alternate Fuels	96	84	75
Energy Markets and End Use	80	72	65
Integrated Analysis and Forecasting	80	72	65
ADP Services	13	12	10
Information Services	20	18	16
Statistical Standards	26	23	21
Resource Management	38	30	26
Total EIA	483	427	381

Question: What sources of funds will be used to pay the costs associated with a RIF?

Answer: The costs for a reduction in force (RIF) in 1997 are budgeted within our program direction activity. The end-of-year target of 427 FTEs in FY 1996 is expected to be achieved through attrition and buyouts; buyout costs are estimated at $875,000. The end-of-year target of 381 for FY 1997 is expected to be met through attrition, buyouts, and a reduction-in-force; costs for buyouts and reduction-in-force are assumed to be $1,125,000. The end-of-year target for FY 1997 is not expected to be met until near the end of the fiscal year to allow the maximum time for normal attrition to occur before activating costly reduction-in-force actions.

WEDNESDAY, MARCH 13, 1996.

NATIONAL ENDOWMENT FOR THE ARTS

WITNESS

JANE ALEXANDER, CHAIRMAN, NATIONAL ENDOWMENT FOR THE ARTS

Mr. REGULA [presiding]. We'll start the committee hearing. Each of you can take five minutes the first time around and then we can have unlimited time.

We're very pleased to welcome the Chairman and look forward to hearing your testimony. You can give the whole thing or summarize as you choose.

Ms. ALEXANDER. Thank you, Mr. Chairman, and members of the Interior Subcommittee. I do appreciate the opportunity to testify today about the importance of this agency, the National Endowment for the Arts.

FUNDING CUT FY 1996

Last year this committee set in motion the deepest budget cut in the history of the National Endowment for the Arts. Our funding level of $99.5 million in Fiscal Year 1996 represents a 39 percent reduction and puts the agency's purchasing power in real dollars back to where the agency was in 1972, a quarter of a century ago.

Mr. YATES. I wish the agency were where it was in 1972 instead of facing its death.

Mr. REGULA. Thirty seconds. [Laughter.]

Ms. ALEXANDER. This cut necessitated a 46 percent reduction in the Endowment's grant-making budget. Entire categories of assistance had to be eliminated and arts organizations lost far more than dollars. They lost the prestige of recognition and the fundraising potential that comes with it. And we were forced to reduce grants to State arts agencies by 30 percent. The average basic State grant dropped—the average—by $130,000, hitting the smallest States the hardest.

EFFECT OF FUNDING REDUCTION ON AGENCY

And, finally, the committee's cut translated into a 34 percent reduction in our administrative budget forcing my agency to lay off 89 employees in an agency-wide reduction in force. This reduction would have been deeper had we not moved $2.5 million from the program budget to cover the cost of our downsizing and we are grateful for that.

The work burden on the remaining staff has been really overwhelming. In January, we completed the most comprehensive reorganization in this agency's 30-year history. We folded 17 distinct programs into four divisions. And we have created a new leadership initiative area to support important arts projects of national significance, or ones that are models that need to be recognized and perhaps replicated elsewhere.

I also have established the Office of Enterprise Development, whose job it is to seek ways of creating supplemental funding for the nonprofit arts. And we're moving forward, but we will process far fewer applications, and of course that necessitates far fewer grants all across the Nation.

EFFECT OF FUNDING REDUCTION ON ARTS ORGANIZATIONS

I would like to talk just a little bit about the impact of this on the arts in America. The Endowment's Music Program, for example, was cut by more than half, from $10.6 million to $4.5 million in Fiscal Year 1996. And what does that mean? Well, if I may, Mr. Chairman, the Canton Symphony Orchestra, for example, uses NEA funding for an outreach program where they place ensembles of professional music people in the Stark County public schools. Now we no longer provide seasonal support to places like Canton Symphony. Every grantee must use the money for a specific project, and outreach into the community is one of my major priorities. In past years we have given the Canton Symphony Orchestra a grant averaging about $20,000. This year we had to make cuts in orchestras across the board; in effect, I feel, cutting our children's cultural enrichment.

The Spokane Symphony Society also performs in the local schools with their grant funds, and they played a number of concerts in their family series, but we had to cut their grant in half. Will they be able to continue to serve the community in the ways that they have in the past? And hundreds of orchestras face this same dilemma today.

For 30 years the Endowment has made the arts accessible and music accessible to the American people and not to some undefined cultural elite that we are sometimes accused of. The 39 percent cut imposed by Congress reduced our ability to support folk and the traditional arts, including many beloved folk festivals throughout the country, and one in particular that comes to mind is the Tucson Heritage Experience, where all the distinct cultures of southeast Arizona come together at once. In 1995 we supported them with a $15,000 grant, and this year, knowing of our troubles, they asked for less—they asked for only $9,000—but we couldn't even come up with that for them this year.

And it wasn't a question of quality; it was simply a question of not having the money to fund the organizations in need. Today this particular group is seeking desperately other sources of funding because they are determined to avoid imposing an admission charge on the public, which would preclude a lot of people from attending the event.

EFFECTS OF FUNDING REDUCTION ON ARTS EDUCATION

Arts education partnerships with the States were cut by 40 percent, jeopardizing the 14,500 artists in residence that we have in the schools in America. We were forced to cancel our highly successful Arts Plus Program which provided seed money to bring artists and teachers, students and community leaders, together in partnership. Grants to dance companies, community art centers in minority communities, museums, opera companies, grants for presenters, for musical theater, for writers—all of these were slashed, everything. You've got to imagine everything across the board has been cut. Most of the theaters were cut. Chicago's Children's Theater, for example, was down 40 percent to $4,000 this year.

Our Museum Program has been devastated. We had to eliminate more than 70 grants for special museum exhibitions and reduce the remaining grants by an average 16 percent. And I think this is pretty ludicrous when you consider the big hit of the year was the Vermeer exhibition just down the street from us. We had to abolish grants devoted to the care of collections, which means we will not make grants for such important functions as security, climate control, or any of the necessary needs of museums and other facilities that need to protect their collections. This has always been an important program from our perspective, and I know the subcommittee's as well, but we did have to make hard decisions and we were guided by the museum community in this respect.

EFFECTS OF FUNDING RESTRICTIONS ON INDIVIDUALS

Deeply distressing to me is the congressionally-mandated cut-off of funds to nearly all individual artists. Individual artists per se and I want to repeat this—I know I've said it before—have not been the source of political problems for the National Endowment. Some of this country's finest artists and writers got the break that they needed at the time with the help of the NEA, and I will cite just a few: our recent poet laureate, Rita Dove; choreographer Alvin Ailey; composer Wynton Marsalis; young tap dancer Savian Glover; Gunther Schuller, conductor of the Spokane Symphony and composer; and sculptor Luiz Jiminez, whose work stands outside the National Museum of American Art here in Washington.

All were relatively unknown before the Endowment picked their work out as excellent and worthy of support early on in their careers. 1995 was the final year that we were able to make grants to individual artists, except for a vastly scaled down program for creative writers. Many of our 1995 fellowship winners hail from your districts: composer Richard Wargo from Scranton, Pennsylvania; choreographer Ellen Bromberg from Tucson, Arizona; composer Marghreta Cordero from Anthony, New Mexico; designer Andrea Marks from Corvallis, Oregon; and visual artist Chuck Forsman from Boulder, Colorado. I go could go on and on.

POTENTIAL ARTS FUNDING FROM PRIVATE SECTOR

There are literally thousands of unique projects throughout this country that will be abolished, cut back or scaled down, or made more expensive, or made cheaper in quality, as a result of this 39 percent cut in our funding this year. The private sector cannot replace what the Endowment does, as you've heard from my colleague, Sheldon Hackney, and others. From the Rockefeller Foundation, a report recently issued states that there is a very complex relationship between public and private funding and the study determined that foundations already give over $1 billion to the arts each year, and that they will not be able to give more.

IMPORTANCE OF THE ENDOWMENT'S MISSION

For over 30 years the National Endowment for the Arts has done, in my estimation, a superb job of fulfilling the legislation under which it was created in 1965. We have leveraged the private sector through our imprimatur of excellence. We should all be proud of this accomplishment. We have made close to 110,000 grants and fewer than 40 have caused some people some problems. And that, I maintain, is a record that other agencies wish they had.

The question before us is not whether art will survive, because artists, like wild flowers in a cement crack, will reach for the sun. The question is whether this powerful Nation, on the cusp of the millennium, decides to marginalize the artists further from our society, rather than to encourage them to define and interpret all that we are as a people. We should celebrate not only our brilliant American artistic accomplishments of the 20th century and before, but be the plowshare that breaks the ground for our children in the 21st. And that, I maintain, Mr. Chairman, is the question before us.

I would like very much to ask for $136 million in Fiscal Year 1997, which will permit a modest increase in the work we are doing. And I ask for your support. Thank you. I'm happy to respond to any questions.

[The statement of Ms. Alexander follows:]

NATIONAL ENDOWMENT FOR THE ARTS

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Jane Alexander, Chairman
National Endowment for the Arts
Testimony before the
U.S. House of Representatives
Appropriations Committee
Washington, D.C.
March 13, 1996

Thank you Mr. Chairman, and Members of the Interior Subcommittee. I appreciate the opportunity to testify today about the importance of the National Endowment for the Arts.

Last year this committee set in motion the deepest budget cut in the history of the National Endowment for the Arts. Our funding level of $99.5 million in fiscal 1996 represents a 39 percent reduction, and puts the agency's purchasing power in real dollars back to where it was in 1972 - nearly 25 years ago. It is a cut that far exceeds that imposed upon almost every other agency within the Interior Subcommittee's jurisdiction.

I recognize the difficulty of the budget deficit and the problems faced by the committee in allocating a shrinking budget year after year. However, it brings me back to the fundamental question of what this government is trying to accomplish. I hear speeches about how we must think of our children, how we cannot continue to pile upon their shoulders this crushing burden of debt.

But we must consider the other side of the issue. How far are we willing to go in depriving our children here and now. How far can we go in cutting education, health care, Head Start, and yes, arts education and appreciation of the arts before our children today are harmed. It is a fact that when our budget is cut by 39 percent, and we can't afford to put 14,500 artists-in-residence in America's public schools, we are depriving our children of the chance to discover the classics, and explore their musical and artistic creativity. These are the opportunities that a wealthy and civilized nation should give proudly to its young people.

How has the 39 percent cut affected the Endowment's operations? In general terms:

It necessitated a 46 percent reduction in the Endowment's grant-making budget.

Hundreds of arts organizations in every single part of this country have lost their grants - others have had them drastically reduced. Entire categories of assistance have been eliminated. These arts organizations lost far more than dollars. They lost the prestige of recognition and the fundraising potential that went with it, as our grantees have been able to leverage, on average, twelve additional dollars for each dollar we give them.

The cut translated into a 30 percent reduction in funds passed through to our state arts agencies. The average basic state grant dropped by over $130,000, hitting the smallest states hardest. Will the states pick up the slack? We don't know, but their appropriations for arts related activities are down in real dollars by 25 percent since 1990.

Finally, the committee's cut translated into a 34 percent reduction in our administrative budget, forcing me to lay off 89 employees in an agency-wide reduction-in-force. That may not sound like a lot of people, but it was nearly half the agency. The work burden on the remaining staff has been overwhelming, and our efforts to be responsive to the public and to the arts field have been difficult. Finally, with respect to the employees who left, you should know that they were not faceless bureaucrats, they were hardworking, dedicated public servants who worked long hours, often on weekends.

Anticipating a reduction, we began last summer to prepare for it. Despite the shut-down in November, the RIF in December, and the second shut down in December and January, we completed the most comprehensive reorganization in the agency's thirty year history. We folded 17 distinct programs into four. We created a new Leadership Initiative area to support important arts projects of national scope - projects that would not happen, but for Federal leadership and funding. Rural chamber music residencies and the Mayors' Design Institutes are examples of some existing leadership initiatives, and we will fund new ones as well. I also established an Office of Enterprise Development whose job is to seek new ways of creating supplemental funding for the nonprofit arts - not necessarily by way of the Endowment - but for the benefit of the nonprofit arts. In short Mr. Chairman, we are moving forward, and we are continuing as best we can to fulfill our basic mission of bringing the best art to the most Americans.

Nevertheless we will process far fewer applications, and we will necessarily make fewer and smaller grants. If this does not sound particularly ominous in the abstract, be assured that the cuts will be felt in every city and town. They will be felt across every arts constituency, and unfortunately, in your home towns as well.

The Endowment's music program was cut by more than half - from $10.6 million to $4.5 million in 1996. Each orchestra that received funding had its grant cut in half. Forty orchestras that had received grants in the past were cut off altogether.

What does that mean? I'll give you an example, if I may Mr. Chairman, of the Canton Symphony Orchestra. The Canton Symphony uses its NEA funding for an outreach program in which they place ensembles of professional musicians in the Stark County public schools to play, lecture, coach and teach master classes. You see we do not provide unrestricted seasonal support any longer. Every grantee must use the money for a specific project, and outreach into the community is a major priority for the agency. In past years, we have given the Canton Symphony Orchestra a grant averaging about $20,000. But of course, this year we had to reduce it, and thereby cut our children's cultural enrichment.

We will still fund the Spokane Symphony Society although at a reduced level. They, too, perform in the local schools with their grant funds, and they play a number of concerts in their Family Series. The cut is especially problematic for them because as you know eastern Washington is quite rural. The Symphony can only rely so much upon local companies and foundations for fundraising, and if you ask them they will tell you they have maxed out their fundraising potential. I expect the Symphony will stay in business, but it remains to be seen whether they will be able to raise the funds they need to serve their community professionally.

This is what I am talking about when I say that the Endowment has made art accessible to the people. In the past, we have made the Family Series concerts possible, as well as ensembles in schools, and many other services to American education. And this is only the most basic example of why the charge some of our critics have made that the Endowment is "elitist" is so absurd.

Most of the 271 theaters we are supporting in 1996 are receiving decreased support. Chicago Children's Theater's grant, for example, is down 40 percent to $4,000. It will impair their ability to reach between 9,000 and 15,000 children.

In 1995, the Endowment spent $4.3 million to help produce some of the best shows on public television and radio including the annual Capitol concerts, Great Performances, American Masters, and Live from Lincoln Center, among others. This year, we were able to provide only $1.4 million for these media programs. Will those shows continue to be produced? We don't know. American Masters will almost certainly produce fewer documentaries on major artists. Who will make up the funding shortfall?

The 39 percent cut imposed by Congress reduced our ability to support folk and the traditional arts including many of the folk festivals throughout the country. If you've ever been to a folk festival you know they have all manner of performances, storytelling, craftsmen workshops, and ethnic foods. They are truly events for the people. One in particular that comes to mind is the Tucson Heritage Experience, an annual festival in which all of the distinct cultures of southeast Arizona come together. In 1995, we supported them with a $15,000 grant. This year, knowing of our troubles, they asked for a lesser amount - only $9,000, but I am sorry to say, we could not do it. It was not a question of quality, we simply did not have the money. Today they are desperately seeking other sources of funds, and are determined to avoid imposing an admission charge which they feel strongly is not an option for the community they serve.

I may be impolitic in recounting examples in which members of the subcommittee may have a particular interest, but this is the tip of the iceberg. Projects in every pocket of the country have been cut as well.

Arts education partnership grants with states were cut by 40 percent. The result was a reduction in the 14,500 artist residencies we support each year in the nation's schools. We were forced to cancel our highly successful Arts Plus program, which provided seed money to bring artists, teachers, students and community leaders together in partnership to create art. One such project we supported was the Children's Dance Theater of Salt Lake, which joined two other major Utah dance companies in a wonderful program to bring dance performances and instruction to students and teachers throughout the state's public schools. Nationwide there is no simply no other entity that can take the Endowment's place in catalyzing programs like these.

Grants to dance companies, community art centers in minority communities, museums, opera companies, grants for presenters, for musical theater, for writers - all of these were slashed.

Our museum program was devastated. We were forced to eliminate more than 70 grants for special museum exhibitions and to reduce the remaining grants by an average of 16 percent. This, came at a time when more people than ever are attending museums. Think of the success of the recent Vermeer exhibition, in which hundreds of people stood in line for hours to view his paintings. Furthermore, we had to abolish all grants devoted to care of collections, which means we will not make grants for such important functions as security, climate control or any of the necessary needs of museums in protecting their collections. This has always been an important program from our perspective, and I know the subcommittee's as well, but we had to make hard decisions, and we were guided by the museum community in this respect.

Deeply distressing to me is the Congressionally-mandated cut-off of funds to nearly all individual artists. Mr. Chairman, I have heard your remarks about individual artists, and I must respectfully disagree. Individual artists per se have not been the source of political problems the Endowment has faced in recent years.

All creation, of art, of invention, of science, begins in the mind of the individual. Without the artist there can be no art. Congress's elimination of grants to nearly all individual artists sent a very negative message that artists can't be trusted - or at the very least - they are disrespected.

One refrain I have heard many times is this: "I don't care what the artists do, I just don't want them doing it with my money" - meaning the taxpayers' money. The fact is, artists pay taxes too. Everyone can name a government program with which they disagree, but that does not mean the program in question isn't worthy or important to the public good.

Some of this country's finest artists and writers got the break they needed with the help of the National Endowment. Poet Rita Dove, choreographer Alvin Ailey, composer Wynton Marsalis, Gunther Schuller, the conductor of the Spokane Symphony, and sculptor Luiz Jiminez, whose work stands outside the National Museum of American Art here in Washington - all were relatively unknown before an Endowment peer panel picked their work out of obscurity. In 1991, an unknown E. Annie Proulx received an NEA fellowship, and wrote The Shipping News, which won the National Book Award in 1993. In 1994, the book won a Pulitzer Prize.

1995 was the final year that we were able to make grants to individual artists, except for a vastly scaled down program for creative writers. Many of our 1995 fellowship winners hail from your districts - composer Richard Wargo from Scranton, Pennsylvania; choreographer Ellen Bromberg from Tucson, Arizona; composer Marghreta Cordero from Anthony, New Mexico; designer Andrea Marks from Corvallis, Oregon; Visual artist Chuck Forsman from Boulder, Colorado. All were successful in 1995, and may go on to become household names in the arts. Had they waited to apply in 1996, as many others did, they would have had their applications returned.

Accordingly, I urge you in the strongest terms to lift the ban on grants to individual artists in fiscal 1997.

I could go on. There are literally thousands of unique projects throughout the country that will be abolished, cut-back, scaled-down, made more expensive, and cheapened in quality as a result of the 39 percent cut in funding we suffered this year.

The standard refrain against the Federal government's involvement in the arts is that it is a matter best left to the private sector. Last month, a report written by the Rockefeller Foundation disputed that claim in a comprehensive survey of the complex relationship of private and public sector funding that pays for the nonprofit arts. Government grants are only part of a system that includes ticket sales, program advertisements, corporate and foundation giving, gift shops, membership fees, licensing agreements and many other creative fundraising techniques. While earned income is a substantial part of any organization's budget, the cost of producing art for public consumption exceeds income for all but the most popular ventures. The foundations examined in the Rockefeller study already give over $1 billion to the arts each year. They say they will not and they can not give more. In any case, corporate and foundation dollars are given locally, concentrating on the largest, most prestigious institutions, often in response to capital campaigns that include government support.

The National Endowment for the Arts today is the single largest donor to the nonprofit arts, and has been so since 1976. Our grants, made available through the appropriation of taxpayer funds, simply can not be replaced in the absence of some as yet not agreed-to nationwide, dedicated funding source.

I understand that the $99.5 million recommended by the committee in 1996 was based on the amount recommended in the reauthorization bill adopted by the House Economic and Educational Opportunities Committee. You should understand, however, that the bill, H.R. 1557 which envisions a three-year phase out of the Endowment, was introduced and reported by the committee in the absence of any opportunity for public comment or public hearings. The Chairman of that committee unveiled his bill on the morning of May 10 last year, and it was reported by the committee two hours later. It is still pending on the House calendar.

Later in July, as I am sure you recall, the House failed to adopt the rule on your appropriation bill. There followed a late-night meeting of members of the House Republican Caucus which resulted in a further diminution of the Endowment's future. Certain members insisted that if the authorization bill were ever brought to the House floor, that it be amended to effectuate a two-year phase-out rather than the three years proposed in H.R. 1557.

Later in the year, when the Senate position supporting continued funding for the Endowment was brought forward, this committee and the Senate conferees agreed that the issue should be "resolved by the legislative committees in the House and Senate." I recognize the rationale for that course of action, but I must respectfully point out that the majority of the House authorizing committee made very little effort that I know of, if any, to explore the consequences of eliminating all Federal funding for the arts.

There must be a discussion of what the 39 percent cut in our budget has wrought, and what eventual termination of the Endowment would mean to the American people. Mr. Chairman and members of the subcommittee, the onus is once again on your shoulders.

Finally, I wish to state that for over 30 years the National Endowment for the Arts has done an excellent job. We have leveraged the private sector through our imprimatur of excellence. No one can do this better than the Federal government, and it is an accomplishment of which we should all be proud. I would also like to point out we have made over 100,000 grants in these 30 years. Fewer than 40 have caused some people some problems.

Today, we ask for $136 million in fiscal 1997, which will permit us a modest increase in the work we are doing. Next year, the year in which the House is committed to phasing out the agency, we will ask for funding again. We will do it because it is the right thing to do. I believe it is what the American people want.

Again, I am pleased to have this opportunity to speak with you.

NATIONAL ENDOWMENT FOR THE ARTS

The Nancy Hanks Center
1100 Pennsylvania Avenue NW
Washington DC 20506-0001
202/682-5400

Jane Alexander, Chairman
National Endowment for the Arts

Jane Alexander was nominated by President Clinton to become the sixth Chairman of the National Endowment for the Arts in the summer of 1993. After unanimous confirmation by the U.S. Senate, she was sworn into office by Supreme Court justice Sandra Day O'Connor on October 8, 1993.

Since becoming Chairman, Ms. Alexander has visited more than 130 communities in all 50 states and Puerto Rico. In over 150 public speeches, she has outlined her vision for the agency with thousands of people. She has met personally with Members of Congress, governors, mayors, state legislators, artists, corporate, education and community leaders throughout the nation. Taking up the challenge of President Clinton to "renew America," Chairman Alexander has spoken out about how the arts can contribute to education reform and community building.

As part of the Administration's efforts, she has initiated new partnerships with federal agencies. Under Ms. Alexander's leadership, the Arts Endowment began a partnership with the Corporation for National Service to create the "Writers Corps," as part of the national force of AmeriCorps volunteers. The Endowment has also entered into partnerships with the U.S. Department of Transportation and other agencies to encourage design excellence at the federal level. Chairman Alexander has also strengthened the long-standing relationship with the Department of Education for arts education research and development.

On the international level, Ms. Alexander signed an agreement with Canada and Mexico to begin a three-way artistic exchange program in 1994. As part of the Administration's goal for streamlining government, Chairman Alexander has initiated a number of internal reforms and reorganizations at the agency.

Six months after taking office, Chairman Alexander convened the first national arts conference organized by the Federal government: "Art-21: Art Reaches into the 21st Century." Over 1,100 artists and administrators attended the assembly in Chicago to share information and explore new ideas about the future of the arts in America. From this dialogue and her exploration of the state of the arts across the country, Ms. Alexander developed her priorities for investing in communities, education, new technology, preservation of our heritage, and partnerships for the arts.

-more-

For her leadership, Ms. Alexander has received a number of honors, including the 1995 Montblanc de Culture North American Award, which she donated to the Writers Corps, and the Common Wealth Award for bringing the arts to the American people. She is a much sought-after public speaker and has given commencement addresses at The Juilliard School, the UCLA School of the Arts, and the North Carolina School for the Arts in 1994, and the University of Pennsylvania and Princeton in 1995.

Ms. Alexander, a native of Brookline, Massachusetts, has been active in the arts for over 35 years as an award-winning actress, producer and author. In addition to the 40 films and numerous television programs in which Ms. Alexander has appeared, she has performed in over 100 plays on stages across the country. Ms. Alexander has received a Tony Award for *The Great White Hope* and an Emmy Award for *Playing for Time.* She has received six Tony Award nominations, four Academy Award nominations, and five Emmy Award nominations. She also received the Television Critics Circle Award for her portrayal of Eleanor Roosevelt in *Eleanor and Franklin: The White House Years.*

Ms. Alexander has produced three films, including the acclaimed *A Marriage: Georgia O'Keeffe and Alfred Stieglitz* for PBS's "American Playhouse" series. She has narrated numerous documentaries, short stories, and books, and is co-author of a translation of Henrik Ibsen's *The Master Builder* as well as *The Bluefish Cookbook.*

Prior to becoming Chairman, Ms. Alexander served as an effective and articulate advocate for a number of worthwhile causes, including the National Stroke Association, Women's Action for New Directions, and the Wildlife Conservation Society. In recognition of her leadership, she received the Living Legacy: Jehan Sadat Peace Award in 1988.

Ms. Alexander attended Sarah Lawrence College and the University of Edinburgh. She was born on October 28, 1939 in Boston, the daughter of surgeon Thomas B. Quigley, one of the pioneers in the field of sports medicine and Ruth Pearson, a nurse in neurosurgery. Her grandfather Daniel Quigley was Buffalo Bill's personal physician in North Platte, Nebraska. Ms. Alexander is married to director Ed Sherin and is stepmother to Tony, Geoffrey and Jonathan. Her son, Jace Alexander, is a stage and film director as well.

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Mr. REGULA. Thank you. An excellent statement.

I'm going to reserve my five minutes because maybe some of the committee members have other committees they need to go to.

So, Mr. Yates?

Mr. YATES. Well, I don't have another committee to go to, so I'll reserve mine, Mr. Chairman.

Mr. REGULA. All right. Mr. Nethercutt.

SUPPLEMENTAL FUNDING MECHANISMS

Mr. NETHERCUTT. I do have another committee to go to, so I'll go ahead and exercise my five minutes.

Ms. Alexander, thank you for being here and for your statement. When Dr. Hackney was here a week or so ago, I broached the subject with him of whether there might be some mechanism that could be undertaken, and I would be interested to know if you support such a mechanism, that would require the artists who benefit from National Endowment for the Arts funding commercially, to essentially have the Endowment be entitled to a royalty of some kind. This would somehow contribute to the funding of the National Endowment and recognize that without the Endowment's initial assistance, they might not have thrived and survived. Would you support that?

Ms. ALEXANDER. Congressman Nethercutt, there is a provision in the Senate authorizing legislation that asks for recovery and it is something that we're interested in pursuing. It is a bit of a nightmare logistically to monitor and to find ways to recover, and I know that we are looking carefully at what our colleagues at NEH do.

In addition, I am pursuing conversations with the commercial entertainment sector suggesting to them that they might recognize the research and development aspects that the nonprofits give to them further down the line. This is not to diminish the excellence of nonprofits in their own right, at all, but many of our artists, designers, writers, actors, directors, musicians and so on, and administrators, go from the nonprofit art sector into the commercial sector, and some of them move back and forth. But I would like the commercial art sector to recognize a little bit more of what the nonprofit art sector gives to them. And maybe we could find some ways that they could contribute more.

Mr. NETHERCUTT. I think it's advisable that you pursue that, simply because the pressure on your budget will continue. I think there's no escaping that. And I, therefore, think that the Alvin Aileys and the Wynton Marsalises of the world who are commercially successful, I guess not unlike freshmen football players who sign zillion dollar bonuses who then make a substantial grant back to their institution that gave them the scholarship that allowed them to have a pro career, perhaps that mentality could be imposed contractually upon people who benefit from the National Endowment and then go on to commercial success. It seems to me it's something that's not unreasonable and certainly moral, and it expresses clear support and payback, if you will, for their commercial success.

Mr. YATES. Will you yield for a question?

Mr. NETHERCUTT. Certainly.

POSSIBLE TERMINATION OF ENDOWMENT

Mr. YATES. How do you expect Ms. Alexander to do that, to enter upon such an important initiative, when this committee says in its managers' statement in the Conference Report, that the majority managers on the part of the House, continue to support termination of NEA within two years, and do not support funding beyond fiscal year 1997?

Mr. NETHERCUTT. Mr. Yates, I'm assuming that your wisdom and that of others may prevail.

Mr. YATES. Will you join me?

Mr. NETHERCUTT. It all depends. No, I think that maybe that's an alternative to increased funding, or maybe it's an alternative to the termination of funding that would be acceptable to the Endowment.

Mr. YATES. I think it's a great idea, George, but I think the time for great ideas is over, if the words in this Conference Report are to be believed.

APPROPRIATE FUNDING LEVEL FOR ENDOWMENT

Mr. NETHERCUTT. I understand. Let me, in the remaining time that I have, ask you this: I know you speak eloquently about the effect of the reduction in spending levels and funding levels in your agency for the last year. Would you disagree with me that arts in America have survived thus far? I think a year ago when I met with you privately I asked you how much would be an appropriate amount for this Congress or the taxpayer to contribute at the Federal level, for an acceptable level of arts appreciation in the country. At that time, my memory was, you said you would fund it exactly as you've asked and you wouldn't make any great changes. And as an advocate of your agency, I didn't expect any other answer.

But, given the history of the NEA, and what it started out with in terms of funding and where it's gotten to now, is there magic in the number of $136 million and $162 million or $99 million? I mean, maybe $50 million would be an adequate contribution by the taxpayer to the arts in the country. Can you tell me your feeling about what an adequate level would be, even if we started with zero and said, "What do you really need to have an adequate level of funding for the arts, NEA?"

Ms. ALEXANDER. Well, this is going to shock you, but we need $350 million.

Mr. NETHERCUTT. I understand that. You want $350 million, but do you need $350 million?

Ms. ALEXANDER. Let me show you the map, if I may.

[The map referred to will be found on page 833.]

This gives you an idea of the grants and the reach of the Endowment in 1994. I think you'll pretty much agree that almost every congressional district is reached here. Now there is considerable diminution of the amount of funding that has gone to all of these areas. It's not adequate as it is. Fifty percent of our theaters in the United States are operating with significant deficits—50 percent.

Are these facilities worthy of support? I maintain they are because the communities want them. But the communities feel that they're maxed out. The Federal Government has a role to play in stimulating the private sector in those communities. And that's what we do.

Mr. NETHERCUTT. But you're telling me that $350 million is the only acceptable level of stimulation. I'm saying to you, and am suggesting to you, that with $99 million or with $136 million, whatever the number might be, to look what you've done in the last year with the amount money that's been given to you. Is there magic in that number or are you telling me, simply, that the more money, the more you can do. Certainly that's agreeable.

But I'm wondering, given the pressure that we have in the Congress and given the pressure in the country for fiscal responsibility, what's the right number?

Ms. ALEXANDER. Well, it's a question of health, isn't it? It's a question of health. If a facility is operating with a deficit and yet it's of value to the community, I don't think that's a healthy situation. And, I think $350 million will create a healthy situation. And that amount is simply addressing the inflation that took place since the early 1970s, so that the Endowment will be on a par with other agencies. We haven't gotten an increase. And we're back to where we were in 1972.

As I say, I think we are an extremely successful agency and I'm not sure Congress recognizes that we are doing everything that they say they want agencies to do. We are a stimulant to the economy. We increase the quality of life in any given community and all our money is disbursed to local communities. Look at that. So, it's a question of health. When you have $50 million there's less money pumped into the economy; there's less money that's matched at that local level. And the facility somehow has to reduce something. It reduces its arts education; it reduces its outreach; it reduces its maintenance systems. Something goes.

Mr. REGULA. Mr. Bevill?

Mr. NETHERCUTT. Thank you.

Ms. ALEXANDER. Thank you, Congressman.

Mr. BEVILL. Thank you, Mr. Chairman.

I just want to welcome Jane, and if you asked me, I think you have one of the toughest jobs in the United States, considering the budget cuts that have been made in the arts. And, of course, Sid Yates here is our leader and he's been out front for years in working on this.

Mr. YATES. Decapitated.

CHAIRMANSHIP OF JANE ALEXANDER

Mr. BEVILL. I just really want to commend you for the job you have done. I remember you set your goal at going into all 50 States, and if you haven't done it yet, I'm sure you will. And I know the people in Alabama appreciated you very much in an appearance you made there. And, also, I just wanted to thank you for calling the young lady that was here last week. She's my constituent.

Ms. ALEXANDER. She is just lovely, Congressman.

Mr. BEVILL. She was so excited about that, and also she got to meet Sid Yates. [Laughter]

Ms. ALEXANDER. She speaks very highly of you as well.

IMPORTANCE OF ARTS EDUCATION

Mr. BEVILL. You two made her day.

And I believe the arts are extremely important to our society and especially to our young people. As a matter of fact, I get really excited with high school students; every year I've been carrying this art program which has been very successful. We hang the winner's painting here in the Capitol for a year, and then there are five runners-up whose paintings I hang in my office for a year. It's proved to be very successful. So I just want to say thank you for what you have done. I don't think there has ever been any chairman that has ever put the energy, the work, the time that you have devoted to it, and the dedication. And we appreciate it very much.

Ms. ALEXANDER. Thank you very much, Congressman.

Mr. YATES. Tom, will you yield for a statement?

Mr. BEVILL. Yes, sir.

CHAIRMANSHIP OF JANE ALEXANDER

Mr. YATES. My connection with the arts goes back to the time when Nancy Hanks was the Chairman. I can tell you that your statement about the abilities of Jane Alexander as a leader of the arts is absolutely correct. All of the NEA's chairmen have been good, but she's outstanding. No question about it.

Mr. BEVILL. Well, you may not be aware of this, but Jane has performed in over 70 movies, and if you just see her biographical sketch, as I have, and what she's accomplished, it's just amazing what this lady has done.

Mr. YATES. That's true.

Ms. ALEXANDER. I haven't done 70 yet, Mr. Congressman. [Laughter.]

I've done 40, but I'll do 30 after this job. [Laughter.]

Mr. BEVILL. Maybe it was stage and movies.

Ms. ALEXANDER. That's correct.

Mr. BEVILL. I remembered the figure 70 something when I introduced you there in Birmingham. So, we appreciate you very much and you have my support.

Ms. ALEXANDER. I'm grateful, thank you, and I just want to thank you for bringing that outstanding young woman from Coleman, Alabama, Melanie Moyer, to the committee. That was a wonderful statement she made.

Mr. REGULA. Mr. Kolbe?

Mr. KOLBE. Thank you, Mr. Chairman. I do have a Budget Committee meeting going on right now, so I will make my remarks and questions very quickly here and get off to the Budget Committee.

First of all, let me join my colleagues in not only welcoming you, but in letting you know that we all admire you personally and professionally, and also the leadership that you've given to the National Endowment for the Arts. Even when we've had some disagreements, I think, I hope that it's always been in the spirit of comity and also with admiration for the leadership that you have brought to the agency.

I'm personally a strong supporter of the arts. I'll be watching the Arizona Opera Company do "Madam Butterfly" this Sunday, and I think I put my wallet where my interests are in that as well.

I just want to ask you two questions. One, in your testimony, you ask the rhetorical question, Will the States pick up the slack, talking about the cuts in the State grants. You say you don't know, but appropriations for arts related activities are down in real dollars by 25 percent since 1990. That's State appropriations you're referring to, State and local, I guess.

STATES' SUPPORT FOR THE ARTS

My question is, do you think the States are going through the same kind of thing we are doing? Why is it the States have also decided, as apparently you are suggesting that this Congress has decided, and based on the dollars I guess you are correct, why have States decided the same thing, that this is not a priority for their funding?

Ms. ALEXANDER. Well, I think a lot of States are feeling the crunch just like the Federal Government is.

Mr. KOLBE. But State total appropriations are not going down, so the fact that State arts is going down suggests they're rethinking their priorities, doesn't it?

Ms. ALEXANDER. Yes, and I think that it sends a very strong message when your Federal leadership says that the arts are not a priority for them. I think the States pick that up. I think corporate executives pick it up; I think foundation heads pick it up.

Mr. KOLBE. So you think it is the reduction in the Federal dollars that have led the States to cut their dollars, that they're following us?

Ms. ALEXANDER. Partially. I would like to see them make it up because when we're cut, we're cutting our States. All of this money is coming directly out of States, cities, communities.

Mr. YATES. Will you yield for a question?

Mr. KOLBE. Yes, sir.

Mr. YATES. It isn't only a question of lack of funding. It's a question of the statement by the majority in this House, which I read a few minutes ago, that you don't want NEA to continue; you want to kill it. And that's what this language says, and if States read that, they see no hope for Federal help after that.

Mr. KOLBE. Well, reclaiming my time, I think that goes very much to the heart of my question as to then why States, indeed, think it's a priority that they are not willing to pick up. But I think you're right. I think it is getting in to every State and I think they are also re-thinking their own priorities.

THE ENDOWMENT AND CONTROVERSY

My other question is a more general one and it's really two parts. And that is, I'd like you to reflect for a moment on why you think NEA as an agency has become, over the years, as controversial as it has? Why has it become such a lightning rod within Congress? I mean I could pick out lots of other agencies—I could name half a dozen, but rather than getting into naming a few I won't—why has NEA become so controversial?

And the second part of that question is, to what extent have you and your staff and others within the arts community, both in government and out, gone through some kind of introspection on this issue and to say, What is it that we have done that has led us into becoming as controversial as we are? I mean, by it's very nature, it doesn't seem to me that most of what you do should be controversial at all.

Ms. ALEXANDER. Nor is it. As I said, I don't think I can stress the statistics enough, 110,000 grants in 30 years and about 40 have caused some people some problems. As I said in my statement before the Senate committee during my confirmation hearing two and-a-half years ago, by its very nature art will have some controversy, because not all people will be pleased all of the time. So that's a given. And you're never going to eliminate that.

But there are some critics who just took that issue and ran with it, and, unfortunately, began to define the agency long before I came into office. And that happened about five or six years ago with the Mapplethorpe and the Serrano controversies and some performance artists' grants. And our critics just ran with this and they defined the agency and the artists, who are not a cohesive aggregate. The arts administrators and the patrons of art and the audiences were not able to respond properly to what I felt was a totally unbalanced way of looking at the agency.

Now, yes, there were some grants that some people really could say were not the best art, but we do the best that we can to fund the most excellent art, and we will continue to do so. I was concerned when I came into the agency that there were some processes that were not addressing the best, and that was mainly through the process of subgrantee paneling. When you sub-grant funds to another entity to regrant money through their own panels, was the Endowment then responsible for the end product? I didn't think so and I felt that you had to look again at that process of sub-granting. We no longer sub-grant at the agency.

And Congress has also asked us not to give seasonal support, again, in great measure to be more accountable for where our dollar goes. Now we only give project support, so we know specifically when the panel looks at an application, what they are recommending for funding. These are process-related issues and I think that we've addressed them at the agency. But, as I say, our critics were the ones who defined the agency and got it out of balance. The agency does absolutely wonderful things and is highly successful, I feel, in what it does.

Mr. KOLBE. Your view, then, is that the agency has been an innocent victim in this?

Ms. ALEXANDER. I think that there were, as I say, some processes that had to be addressed. I feel we have addressed them. But for the most part, I think it got totally out of balance, because all you have to do is look at other agencies and some of the major scandals—you don't close down the Defense Department because of Tailhook, do you? I could name you many, many incidents.

Mr. KOLBE. I guess that's my point, and none of them seem to generate the kind of emotionalism that this does. There's been some major problems in the Food and Drug Administration, some major scandals at NIH with some grants there, but nobody suggests closing them down and none of those things have ever generated the kind of emotionalism that this does.

Mr. YATES. Well, art is emotional.

Ms. ALEXANDER. Pardon?

Mr. YATES. Art is emotional.

Ms. ALEXANDER. Well, it is emotional; it's emotional and intellectual. It's everything that human beings are. And human beings generate a lot of emotional conflict and tension among each other. That's another given with art, I think. Art is very, very close to the bone. And people can't define it often. And when they can't define it, they react to it in very emotional ways.

Mr. KOLBE. Thank you very much.

Ms. ALEXANDER. Thank you.

Mr. REGULA. Mr. Skaggs?

PERCENTAGE OF ENTIRE FEDERAL BUDGET

Mr. SKAGGS. Thank you, Mr. Chairman.

Good morning. It's hard to know where to begin. We always try to maintain a healthy reality and not just the veneer of politeness in these sessions, and, yet I think the fervor with which you added remarks to your prepared statement indicate a real depth of feeling and concern here. If I understand you correctly, if we're looking at roughly a $1.6 trillion Federal budget for the next Fiscal Year, you would be pleased to have somewhat less than one-tenth of 1 percent of that budget; is that correct?

Ms. ALEXANDER. I think it's less than that, Congressman. One-tenth of 1 percent? I think it's less than that.

Mr. SKAGGS. Well, I may have done an inaccurate job of arithmetic. Is it one one-hundredth of 1 percent?

Ms. ALEXANDER. I think it's closer to one two-hundredth of 1 percent, but don't quote me on that because I don't have my calculator.

Mr. SKAGGS. One two-hundredth of 1 percent. That's what you would recognize as giving the arts appropriate priority?

Ms. ALEXANDER. Relatively, yes. As I say, I don't know the figures.

Mr. SKAGGS. And, again, I think, without exception, the colleagues from the other side of the aisle who have been present at one time or another this morning have privately recognized that some of the pressure that has been created on the budget by things like a generous set of tax reductions for the well-to-do in this country, shouldn't have the priority that their party has given them. But if we were to take that away, the pressure of deficit reduction squeezing your budget would go away, wouldn't it?

Ms. ALEXANDER. I would think so, if I understand you correctly.

Mr. SKAGGS. Or if we hadn't added in $5 to $7 billion that the Defense Department didn't even ask for. Would you be able to get by on that? [Laughter.]

Ms. ALEXANDER. We would love $5 to $7 billion. That would be very helpful. I'm not being facetious; it could be used.

VALUE OF THE ARTS TO AMERICA

Mr. SKAGGS. It seems to me, and, again, I have enormous respect and affection for our chairman, and I do not put him in this category at all for a second, but his party is in the thrall of people who do not value anything but the percent market value. And that's your problem.

Ms. ALEXANDER. It's partially the problem.

Mr. SKAGGS. Because how do we get at a value that markets, by definition, don't get at? It's the same thing with the environment. Markets don't value clean air. That's why we have governments that come in to deal with that.

Ms. ALEXANDER. I think that's correct, and what I think that the National Endowment for the Arts seeks to do, unlike the commercial sector of the arts, is to serve all the people in all of the United States. That's what Government does; that's what Government does best. We make the arts and the artistic experience accessible to all Americans.

Mr. SKAGGS. How do we talk about our responsibility, not just to pass on a great market to the 21st century, which we all believe in, but a civilization?

Ms. ALEXANDER. I'm sorry?

Mr. SKAGGS. How do we talk about our responsibility not only to pass along to the next century, that you referenced in your statement, a terrific market, which I believe is important for our well being, but how do we talk about, persuasively, among ourselves and as leaders of the country, our responsibility to pass along a civilization of which the arts are a part? That market isn't growing; there's no listing on the New York Stock Exchange for civilization.

Ms. ALEXANDER. That's correct.

Mr. REGULA. Would you yield? I think you have to define market because there is a huge market for good art; there's a market in the schools for the kind of program that Jane mentioned. I think you're defining it as a Wall Street market perhaps.

Mr. SKAGGS. Well, I was defining it as a market which will let those things that pay for themselves survive, and let other things that can't pay for themselves wither and die. What we're talking about here, it seems to me, is trying to nurture some things that will otherwise wither and die although they may ultimately, as Mr. Nethercutt points out, make a profit. But as with technology programs, as with environmental programs, we see the legitimate role of Government to try to identify, as unartfully as we can, that this is an important area of public investment.

Mr. REGULA. Would you yield further?

Well, the President's Committee on The Arts and Humanities said that the corporate community in 1991 gave $518 million, and in 1994, $875 million, so I would assume that these were corporate executives with some concern for the business aspect impacting their decision to give $875 million because they have to answer to their shareholders.

Mr. SKAGGS. Well, I think, absolutely, and God bless them, that in part they respond to a sense of national values which in part are our responsibility to nurture as well. And the imprimatur of excellence, that goes a long way to driving that corporate philanthropy. And if we pull the plug on the Endowment, you can see the discussions in those board rooms taking a different turn, I fear.

Ms. ALEXANDER. If I may, there is a sizable market, if you will, in the nonprofit arts. And it makes a very real impact on the communities and on our national economy. There are 1,300,000 people making their living as artists in the United States. But they're not united; they're not one aggregate that you hear from. But that's a substantial figure. That's more than all people in corrections, in police departments and what not.

Mr. SKAGGS. For the time being.

Ms. ALEXANDER. For the time being, correct. Let's hope. There are $38.6 billion in expenditures and $3.4 billion back to the Federal treasury every year in tax revenues from people who work in and around the nonprofit arts field. That's significant. Not to mention, as I said, the cross-over from the nonprofit arts sector into the commercial arts sector and the commercial arts sector is, you know, our second largest export in the United States and one of the biggest industries in the United States. I think it's a very important area and I think that you put your finger on it. What we do is we plant that little seed and we take the risks, we identify excellence and we stimulate the local economy to support it. And then that seed begins to grow and flower.

Mr. SKAGGS. Thank you, Mr. Chairman.

THE ARTS IN AMERICA BEFORE THE ENDOWMENT

Mr. REGULA. Prior to 1962, there was no NEA. The major funding started in 1972 I believe. So there's a lot of good work done prior to that time. How would you explain in the absence of this agency, or at least a well funded agency, that a great deal was accomplished in this Nation?

Ms. ALEXANDER. A great deal was accomplished, but it tended to be situated in major urban areas and to be hostage to private philanthropy. And what the Endowment has done since 1965 is make the arts accessible or help make them accessible all around the United States, as the map shows.

There has also been a proliferation of artists living all over the United States making their living and contributing to the communities. And, again, that's the major difference, the accessibility of the arts and the artistic experience.

PRIORITY OF ENDOWMENT'S FUNCTIONS

Mr. REGULA. If you were to prioritize the agency's functions, i.e., education, individual artists, State grants, as an example, what would be your No. 1 priority with limited funds?

Ms. ALEXANDER. I have been asked that, Mr. Chairman, and I find that I can't prioritize in that way, that it's all important. You can't have arts education without artists. You can have very good teachers, but you still need the excellence of the artist to be there interacting with the pupils. You can't have facilities without the artists, and you can't have arts education without the facilities, and so on. So, it's all important. So, that's why we've been cutting across the board, so to speak, and reducing the number of categories.

CHALLENGE GRANT PROGRAM

Mr. REGULA. If there were limited funding, would you favor a challenge grant type program to leverage what we have with either private sector or State or local funding or school boards, for example?

Ms. ALEXANDER. Well, we're certainly grateful for the Treasury Funds and the Challenge Program, and it's been reworked under our new division of Planning and Stabilization, but that wouldn't be my only priority, no.

Mr. REGULA. Well, I'm saying, if there were limited funds, would this be a possibility for leveraging what we have available?

Ms. ALEXANDER. Yes, but every grant we give leverages other money. It's always one-to-one or one-to-three, or one-to-five. And in our new divisions, we're asking people who are not under the challenge model, could they make a three-to-one match, so that more Treasury Funds can be utilized.

STATUS OF HOUSE AUTHORIZATION LEGISLATION

Mr. REGULA. Have you had any contact with the authorizing committee? As you know, the authorization expired in 1993, and we haven't gotten a new authorization to this point. It's not authorized, which somewhat limits what we can do, because any member can raise a point of order, and then there's zero under those circumstances, and it's not subject to a vote.

So, my question would be, have you had any contact with the authorizing committee since we completed the appropriation?

Ms. ALEXANDER. The House authorization committee?

Mr. REGULA. Yes.

Ms. ALEXANDER. No, I haven't, and, as you may know, they never did have a hearing, so I was unable to testify, and nobody else was on behalf of the agency.

POSSIBLE ROLE OF DEPARTMENT OF EDUCATION

Mr. REGULA. I particularly like in your statement, you talk about depriving our children here and now. In the absence of any authorization, could we perhaps encourage some type of program in the Education Department to get this outreach to the schools?

Ms. ALEXANDER. Well, we work with the education departments, I mean, through the State arts councils, and we have partnerships, of course, with the Department of Education itself, but whether they would take on the added burden is doubtful at this time. We are the main Federal advocate for arts education, and we're in partnership with a great many service organizations and the Department of Education in that regard.

ENDOWMENT'S ADMINISTRATIVE BUDGET

Mr. REGULA. What percent of your funding that you receive actually goes out to groups in the form of grants? In other words, what percent of your budget is administrative in the processing of grants as opposed to actually getting out to the groups and or individuals?

Ms. ALEXANDER. Right now I believe our percentage of administration is 16 percent. That's up because every time you reduce our budget, we still have basic things that we have to serve in the agency in terms of administrative budget. So, we're at 16 percent now, and anything Ana Steele, our Deputy Chairman for Management & Budget, would like to add here?

Ms. STEELE. At the request level, we'd be down to about 13.5 percent. So, more than 85 percent goes out in grants.

Mr. REGULA. Mr. Yates?

Mr. YATES. Thank you, Mr. Chairman.

We're glad to welcome you. I think that your testimony today has been superb. I think it has brought us a great deal of insight into the operations of the Endowment.

GEOGRAPHIC DISTRIBUTION OF ENDOWMENT'S GRANTS

The charts that you have behind you, does that represent one year's funding?

Ms. ALEXANDER. Yes.

Mr. YATES. Last year?

Ms. ALEXANDER. Well, it may have some carry-over grants. It was Fiscal Year 1994.

Mr. YATES. That's a one-year——

Ms. ALEXANDER. Yes.

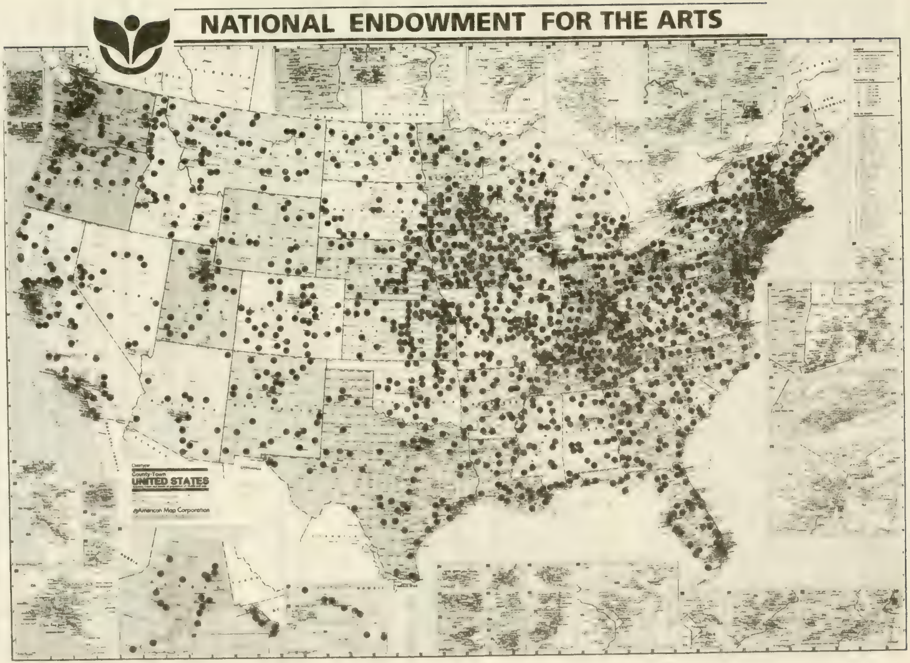
Mr. YATES. My goodness.

Ms. ALEXANDER. And this is in response, Mr. Yates, to you last year. You asked about the stars on a map in one of our brochures, and we said we'd come back to you with a map of the actual impact.

Mr. YATES. Can we have a picture of that or a rendition of that that may be put into our hearings with the chairman's consent? I want to show the extent of your activities.

Mr. REGULA. Without objection, we'll try to get it into the record if that's possible.

[The information follows:]


NATIONAL ENDOWMENT FOR THE ARTS
Cleartype
County-Town
UNITED STATES
American Map Corporation

FUTURE OF THE ENDOWMENT

Mr. YATES. One of the witnesses who has appeared before this committee this year is Mr. Martin Mawyer, who is the president of the Christian Action Network, and he's after you, as you know. [Laughter.]

He succeeds Reverend Wildmon, I think, as the one who states what the moral levels of the country should be, whether its activities comply with the moral levels. And in his testimony he has said, "In the years that——" I read from his testimony. "In the years that the Christian Action Network has worked on behalf of our supporters, no public policy has engendered such resentment as Congress's continued funding of the National Endowment for the Arts." I don't think that's true, speaking personally, but he says that as a fact.

This is what he continues to say, "We respectfully urge the committee to cut off all funding for the National Endowment for the Arts immediately. Should the committee fail to do this, we urge adherence in the Fiscal Year 1996 House language which provides for all NEA funding to be cut off after Fiscal Year 1997."

And if I understand the attitude of the majority of this committee correctly, it proposes to cut off all funding for NEA after the Fiscal Year 1997. Is that a correct statement, Mr. Chairman?

Mr. REGULA. Mr. Yates, I think that reflects the majority of the majority in the House.

Mr. YATES. Okay, then a majority of the Republicans.

Mr. REGULA. Not necessarily of this committee. Yes, the majority of the majority.

Mr. YATES. Well, it also reflects the view of this committee, because in conference I made a motion to strike those words, and my motion was voted down by the majority of the majority of this committee.

Mr. REGULA. That's because we were reflecting the wishes of the majority of the majority.

Mr. YATES. I see. [Laughter.]

Mr. SKAGGS. Sounds like something out of Gilbert and Sullivan. [Laughter.]

Mr. YATES. Well, you remember the second verse of the opening of the second act of Iolanthe. In the sentry song, when the sentry is parading in front of the House of Parliament, and when he starts to sing, "When in that house, MP's divide. If they've a brain and cerebellum, too, they've got to leave that brain outside and vote just as their leaders tell them to." [Laughter.]

So, I just don't know——

Mr. SKAGGS. We haven't rehearsed this, by the way. [Laughter.]

Mr. YATES. I'm not sure where that leaves us with the majority of the majority, Mr. Chairman.

Mr. REGULA. I'm not sure where that leaves me. [Laughter.]

Mr. YATES. I always thought that in this great United States there was room for an individual thinking in the way he wants to think and acting in accordance with it.

At any rate, you are engaged upon a very important project called the American Canvas Project. Why do you plan on holding these meetings throughout the country, and who is paying for this project? And it seems to me that you are very optimistic if you can envision yourself going beyond 1997. And, the reason I ask that question is because of the language that is in the Conference Report.

And I would like to ask the chairman the question. Mr. Chairman, in view of the fact that you propose that there be no funding—the majority of the majority proposes there be no funding after Fiscal Year 1997—will the 1997 budget be a liquidating budget? Do you propose to give them the same kind of a budget that they had in 1996, for example, where they are engaged in grants and in the activities of the arts, or will you, in the Fiscal Year 1997 budget, curtail that and provide funding for liquidating the agency—as the agency has to be liquidated if, in fact, it goes out of existence?

Mr. REGULA. Well, in response to your question, Mr. Chairman, that's the reason I ask about the authorizing committee, because had the then majority in 1994 reauthorized, our problems would be much easier. But, one of the things that constrains what we can do is the fact that any member could make it zero, had he or she chosen to do so under the rules of the House, as you well know.

Mr. YATES. Yes.

Mr. REGULA. And, so it's difficult to say at this juncture. At this point, the majority leadership, in the absence of any change on their part, would want to hold this to a termination with the Fiscal Year 1997 budget. As you well know, one of the reasons we had to do this was to get votes for the rule because the minority did not give us any help on the rule.

Mr. YATES. That's the reason why I engaged in this colloquy, Mr. Chairman, is because of the question I asked Ms. Alexander about, the American Canvas Project. Here you are entering upon a whole new magnificent project, and where are you going with it if indeed NEA is going to be terminated and liquidated?

AMERICAN CANVAS PROJECT

Ms. ALEXANDER. Congressman Yates, I'd like to respond to that. The American Canvas grows out of what I feel is an increasing need of nonprofit arts organizations and the audiences that they serve in the United States. As the guardian agency, if you will, of nonprofit arts in America, I was concerned by the domino effect of funding reductions across the board in the United States. The American Canvas is an attempt to involve communities as a whole—not just people involved in the arts, but all kinds of civic groups, civic leaders, religious groups, educators, and so on, in any given community—in discussions and forums about the value of the arts if, indeed, they feel there is a value of the nonprofit arts in their communities. And if, then, they so value the arts, how do they propose to sustain them? Not just in the year—next year, but in perpetuity, if you will, as a legacy—as a community legacy.

Now, to this end, we will have forums in six cities before the end of October 1996. And out of that, we hope to issue a report that will help nonprofit arts organizations in a typical rural community, in a mid-size one, in an urban environment, and so on, to come up with models and ways that they can sustain their arts.

We've done this with our parks in America. For over 100 years, we have supported a park system. We've done it with our education. I feel it is time now to address culture as a living and as a permanent legacy of who we are as a people.

Mr. YATES. You have time for that now that you have your doom impending?

Ms. ALEXANDER. I would certainly hope that we have time for it because I think it's of great importance.

Mr. YATES. Oh, I think it's of great importance, too, but can it be done within the limited time that the majority of the majority has indicated?

Ms. ALEXANDER. Well, we'll try to complete most of our work, at least four cities, by October 1, which is the beginning our Fiscal Year 1997.

THE ENDOWMENT AND PREVIOUS CONTROVERSIES

Mr. YATES. Well, it seems to me that we are engaged in not only a controversy here over this program, but in a confrontation, and the confrontation is really between Jane Alexander and Martin Mawyer. Who do we back? Whose side are we on? Are we on Martin Mawyer's side in condemning the National Endowment for the Arts for Mapplethorpe and Serrano and a few other grants Although he does say in his statement, and I read that, "The examples I cited are only a small portion of the outrages we have discovered. There are dozens and dozens more," he says in his statement, "of outrageous types of art grants." I challenged him on it, and he said he had them all in a book, a big book. And I never saw the book. Did you see the book, Ralph, by any chance?

Mr. REGULA. Not as yet.

Mr. YATES. No. Anyway, it seems to me that we're engaged in that kind of a confrontation, whether we will permit ourselves to be bound by this very limited view of what the cultural advances of our country should be. As you pointed out, Tailhook is something that the Navy has to worry about. It's happened in other agencies. And I happen to agree with you in saying that I think that the administration of the NEA is one of the finest of all of the agencies of the government. That you don't have many things that you should be ashamed of.

With respect to Mapplethorpe, Ralph, I was listening to the aside; do you know what the Mapplethorpe market is now? Do you have any idea?

Mr. REGULA. I think that I read that it was pretty good.

Mr. YATES. The Mapplethorpe market, his photographs, which were once $5,000 or $10,000, are now going for over $100,000, which shows the power of publicity, I guess.

At any rate, he couldn't sustain that, and it seems to me that that record deserves greater publicity and greater appreciation by the Congress. And perhaps it's the inability of some of us who have tried to carry the Endowment forward because of its great achievements—and, incidentally, I wanted to read something I have in here in what you gave me.

ARTS IN AMERICA BEFORE THE ENDOWMENT

You were asked about what was the condition of the arts community in this country before the Endowment came into existence, in 1962, for example. And I have this—where did this come from Jason? Staff tells me this is taken from the Economic and Educational Opportunities Committee Report on the bill to reauthorize the Endowments from the 103rd Congress.

"Before the," and I read it, "Before the creation of NEA and NEH in 1965, there were only 37 professional dance companies in America. Today, partly because of NEA, there are nearly 300. Prior to the NEA, there were only 27 opera companies, now there are 110. In 1965, there were 58 orchestras. Today, there are more than 1,000. As the facts prove, the arts and the humanities are not enjoyed by the cultural elite. Each year 24 million people from all walks of life go to symphony performances. Eighteen million people attend the opera, and sixteen million see dance performances. But perhaps most dramatic of all is the increase in the number of theater goers. Before the NEA, only one million people each year attended the theater. These were truly the cultural elite. But, thanks in part to the NEA, over 55 million people now go to the theater each year, and these 55 million people include construction workers, homemakers, bus drivers, farmers, and janitors. And far from being a plaything for the wealthy, as some have accused the NEA, the NEA is actually bringing the arts to the people who had been previously denied access to them."

The chairman will remember the Ying Quartet. I put the history of the Ying Quartet into the record and showed what they had done for Jessup, Iowa, a small 200-person town. And the town appreciated it.

EFFECT OF FUNDING REDUCTION ON EXHIBITIONS

And with the chairman's permission, I would like to read just a few paragraphs from the January 8 issue of *Art*, and it's from an article called Dutch Treat by Robert Hughes, the Times Magazine critic. And it's on the Vermeer exhibition, of the millions who went there. And I read, "Two of the casualties of the Republican Congress's petulant drive to shut down parts of the government have been, well you'd hardly guess. Not only nine Cabinet departments and 38 Federal agencies, commissions and boards, but the artists, Winslow Homer and Johannes Vermeer. Winslow Homer was, along with Thomas Akins, the greatest American painter of the late 19th Century. Vermeer of Delft was the greatest Dutch one of the late 17th Century. Both are subjects of extraordinary retrospective shows at the National Gallery in Washington, but because of the Republicans' zeal to pressure Bill Clinton into signing their balanced budget bill has closed the National Gallery along with the whole Smithsonian complex and much else. Nobody can see Winslow Homer in Washington, though the show will travel to Boston in February and New York City in June. Vermeer is more difficult. From the moment it opened two months ago, it was besieged by art lovers, as many as 4,000 a day lining up to see 21 paintings."

And I understand that the Vermeer show was, in measure, financed by the National Endowment for the Arts through the indemnity program. Is that correct?

Ms. ALEXANDER. Well, through the Federal Council on the Arts and Humanities, I sign off on the federal indemnity for these shows that are brought——

Mr. YATES. Okay, okay.

"Four thousand a day lining up to see 21 paintings, two-thirds of the master's surviving output. Because Vermeer's work is so rare, no such gathering of it has been made since his lifetime or will happen again in ours. But on December 16 the show had to close. Last week, the National Gallery's Director, Earl Rusty Powell, managed to scrape together the necessary $12,000 or so a day from private museum funds to reopen the Vermeer galleries, though none of the rest of the museum, for just a week until this Wednesday. Now you see it; now you don't; then you do. But next week, who knows?

Whatever happens, the show has to close for good on February 11 in order to go on view at the Mauritshuis in the Hague in March. Nothing in the budget blackmail epitomizes the Republicans' folly as well as Vermeer. He's the canary in our ideological coal mine. This, one realizes, is part of what Congress' cultural ignorami mean by renewing American civilization. It is done by humiliating cultural institutions and depriving Americans of what the institutions contain. Meanwhile——"

And that's going to happen as a result of cutting your budget, is it not? That your museums are not going to be able to put on a show; that some of the museums are going to have to close? Isn't that what you said was happening?

Ms. ALEXANDER. I do believe that that will happen in many communities in the United States. Seattle will get——

Mr. YATES. Well, it's happening in Canton, Ohio. You said that kids see the arts as a result of the cutback.

"Meanwhile, at the National Gallery, lines have been forming at 6:00 a.m. in below freezing weather and stretching around the block. And what are the unticketed missing? Quite simply, one of the most perfect shows that ever was installed in an American museum."

PUBLIC INTEREST IN THE ARTS

The only point in reading that is to show how intense the American public become interested in the arts. I saw a statistic somewhere that more people go to see the arts than go to sporting events in the United States. And there are a lot of people who go to sporting events.

FUTURE OF THE AGENCY

At any rate, I'm really sorry that your budget has been cut so much, as I've made clear in my arguments in the Congress. I'm sorry that you do face being phased out at the end of Fiscal Year 1997, and I'm sure that we will do everything that we can to try to persuade the majority of the majority that it would be a mistake. I hope and I expect that Chairman Regula will join with me in that effort, because I know that his appreciation of the arts has grown and grown since his experiences with this committee. I think that's a fair statement. And we'll just have to wait and see what happens.

In conclusion, I just want to say that I think that the job that you're doing at the Endowment, and the job that your people are doing, is a remarkably fine job in view of your reduced appropriations. And I hope that you will continue to keep up your outstanding work. Thank you.

Ms. ALEXANDER. Thank you, Congressman.

Mr. REGULA. I would concur in that statement. I think you've done a great job under difficult circumstances.

Mr. Yates, you mentioned about, "Would we phase out." I would have to point out, at least for the record, that the Senate did not agree to a phaseout.

Mr. YATES. I know.

Mr. REGULA. Of course——

Mr. YATES. That's why I ran for the Senate. [Laughter.

Mr. REGULA. What happens prospectively remains to be seen. We do have conferences.

Mr. YATES. Well, with your help, Mr. Chairman, I think that we can turn the majority of the majority around.

Mr. REGULA. Well, I would hope we could get the authorizing committee to deal with this.

Mr. YATES. Well, you know how we can deal with it, Mr. Chairman? We can put a legislative provision in our bill—and you know that our bill has contained many legislative provisions; one more won't hurt it—to the effect that a National Endowment for the Arts is authorized for the next two years.

Mr. REGULA. Right. It has to be subject to the Rules Committee.

Mr. YATES. Well, subject to the Rules Committee.

Mr. REGULA. Without the Federal funding, what do you anticipate happening to the State art agencies? The humanities, of course, are not funded, but the State art agencies are funded by the States. Do you think they'll pick up any of the slack?

FUTURE EFFECTS OF POSSIBLE ENDOWMENT ELIMINATION

Ms. ALEXANDER. I think some of them will, but many of them won't. Right now we can't quite anticipate what it's going to be. The fallout of all of this will not really be felt, Mr. Chairman, for another year or two or three. And whether the States' legislators will follow suit with the majority of the majority at the Federal level is still an unknown.

Mr. REGULA. I know in Ohio the legislature's been a very strong supporter of the Ohio arts agency.

Ms. ALEXANDER. Right. As it has in a few other States as well.

Mr. REGULA. Mr. Skaggs, do you have something——

Mr. SKAGGS. Thank you, sir. I just want to follow up on the exchange we just had.

This may be a little bit of a reach, but I want to try an analogy to something that also goes on in Boulder, Colorado. In addition to the fine arts community that we have there, there's an organization called the National Center for Atmospheric Research that is really a world class institution for doing science on long term climate change and weather. And a scientist there told me a couple of years ago now, but I think it probably still pertains, that we don't know whether through human activities we may already have pushed the climate, the biosphere, past the point of no return.

The analogy is this: You're suggesting that it may be a couple of years before we know what the real consequences may be of the current funding decisions. What if it turns out that they're disastrous. Can we then implement a change in policy that will make things well, or will we have, in some sense, pushed the arts climate past the point of no return?

Ms. ALEXANDER. That's a hard one to answer. We're talking about keeping facilities in good shape as much as anything, and keeping the environment for artistic health in good shape. And it's not in good shape right now. And, as I say, the next few years will show a real decline. We will see a lot more young people not choosing artistic professions. So, what does that mean ten, twenty years down the line? These are all things that are not quantifiable, I think at this moment. But we certainly know that there is a decline in process. And it begins at the top.

STATE-OF-MIND AT THE ENDOWMENT

Mr. SKAGGS. And picking up on just one question more to add on to Mr. Yates's conversation with you, what is the operating state of mind now for you and your agency? Is it one fundamentally of hope and expectation that you will live on? Is it one of fundamental angst about survival? Is it resignation that you are on the way out?

Ms. ALEXANDER. There's a lot of hope in the agency, and I think that most of the people who work for the National Endowment for the Arts are extremely proud of the agency and dedicated to it and committed to the field. Nevertheless, there is great anxiety because we have had to virtually cut our staff in half this year. There is anxiety that more people will be let go in this coming year. And, so that is always there. I feel that most of us, including myself, think that the agency will continue. We have the support of the administration. We have the support of the United States Senate. And we hope that that will prevail.

I think that it would be just a very, very sad statement to the world if this great Nation does not choose to support its artists, its culture in general, if it were to let go of these two very, very small agencies that do so much with so little—the National Endowment for the Arts and the National Endowment for the Humanities.

Mr. SKAGGS. Go in peace. [Laughter.]

Ms. ALEXANDER. Thank you.

STATUS OF SENATE AUTHORIZATION LEGISLATION

Mr. REGULA. Just a couple of questions and comments. I mentioned the House authorizing committee. Have you had any contact with the Senate, because the Senate has not yet authorized the bill, either?

Ms. ALEXANDER. I have talked with the chairman of that committee, Senator Kassebaum, about this. It's not something that they feel they have time for at this—it's come out of committee. Both of these have come out of their committees, but whether they will reach the floor of the House or the Senate, I think is extremely doubtful in this year.

Mr. REGULA. Was the Senate an open-end authorization? What were the parameters, if any, in the Senate bill that came out of the committee?

Ms. ALEXANDER. I believe it was a five-year reauthorization.

Mr. REGULA. At any particular level? Was there any cap on the expenditure level?

Ms. ALEXANDER. I'd have to ask my Congressional Liaison, Dick Woodruff.

Mr. WOODRUFF. Five percent cut each year, which takes us to a level somewhat higher than we have now.

DECLINE IN HEALTH OF ARTS INSTITUTIONS

Mr. REGULA. I'm a little concerned about your statement that the environment for artistic health is declining. I'd have to say that as a patron of the symphony in Canton, Ohio, they're doing extremely well as programs just improve. We have season tickets. And they improve from year to year without the grants. I think the grant was the education outreach which I like very much, but the symphony itself has done well. And I mention this because I think it's indicative that there's an enormous amount of support for our good artistic endeavors throughout this Nation.

Ms. ALEXANDER. I certainly, Mr. Chairman, don't mean to imply that the arts aren't supported by the private sector. The arts in America are virtually 90 percent supported by private funds. Nevertheless, what we have to recognize is this very, very delicate balance between the public and the private sector, in general, in nonprofit giving. And when you start to diminish that public, but very vital catalytic role, then you will begin to see a reduction across the board. And you're not going to see it, as I say, immediately. You'll see it next year, the year after, the year after that. As I said in my statement, what we need to recognize is what this catalytic role is, the importance of it, and what it does for quality of life and stimulation to the economy in any local community. I don't think that's fully understood. I think that the foundations understand it. I think corporations understand it a little bit less. And we don't have private philanthropic giving in the same way by individuals that we used to have.

So, there's a lot of factors in that work to make something healthy. And, yes, there are areas like Canton where you do have a strong, local community that is working together to support the local arts, and I have been there, as you know. You hosted me wonderfully there. But there are many, many communities in the country that simply don't have their act together in the same way. And we worry about them. That's one reason we're starting the American Canvas Initiative, which, by the way, is privately funded.

Mr. REGULA. Well, I'm not sure that I want to accept the premises that communities won't respond. I can only judge from my own, but there's lots of enthusiasm out there for these programs, and the art contributions go up year after year, and most of them are from individuals rather than corporations.

Mr. YATES. Mr. Chairman, suppose you have a recession? What happens then if you don't have an NEA?

Mr. REGULA. Hard to say, Mr. Chairman.

Mr. YATES. I know. It is hard to say, but the prospects are that in the small communities, at least, they will be very badly hit. And you see by that chart, NEA's support helps them continue the kind of high cultural levels that they wouldn't ordinarily be able to achieve.

I didn't mean to get into your conversation with——

Mr. REGULA. Oh, that's fine.

PAST PRESIDENTIAL SUPPORT OF THE ENDOWMENT

Mr. YATES. But I think NEA has over the years, since 1965, has done a magnificent job. Mr. Chairman, would you remember that every President, every President, Republican and Democrat alike—has supported the Endowment and I think perhaps the greatest statement of any of the Presidents was made by President Nixon. Do you remember his speech on the arts? Every President has said that we need a National Endowment for the Arts and the Humanities. They have a vision for this country that I'm afraid we, in the Congress—not we in the Congress, but the majority of the majority doesn't have.

POSSIBLE PHASE-OUT OF THE ENDOWMENT

Mr. REGULA. A practical question: if the decision is made that we do phase out with finality in 1997, would you want any changes in language? What do you think you would need to phase out if that were to be the case? Would there be different requirements? Or would most of your money have to go for RIFing people?

Mr. YATES. Mr. Chairman, can we defer that question for another two or three months until we see what's going to happen rather than now? Maybe we ought to call her back at such time as it appears as she faces the guillotine.

Mr. REGULA. Well, if that would be easier for you to answer under those circumstances. You probably have given some thought to what might be the scenario in the event that the two year phase out prevails.

Ms. ALEXANDER. Certainly, but I have not budgeted for it at this time. I mean, our budget for 1997 is still obviously very much up in the air, and our request level does not necessarily include liquidation. I don't believe, as I say, with the support of the Administration and the Senate that this will happen. If it does, and if it looks like it's going to happen in the next six or eight months, I think that of course we'll revise our allocation and look to what our needs would be.

Mr. REGULA. Well, I'd suggest that you request a hearing with the House Authorizing Committee. At least see if their sentiments are the same as they were last year. It might be useful to us to have some feel for it because we are governed to some extent, a large extent, by what they do.

Further questions?

[No response.]

Thank you very much for coming.

Ms. ALEXANDER. Thank you very much, Mr. Chairman. Members of the committee, thank you.

Mr. REGULA. We'll have some questions for the record, and it's open for members to submit.

[The information follows:]

ADDITIONAL COMMITTEE QUESTIONS

AGENCY DOWNSIZING AND RESTRUCTURING

QUESTION: The FY 1996 conference report proposes significant reductions to NEA's budget. What are you doing to accommodate these reductions into your downsizing and restructuring efforts?

ANSWER: In response to the proposed **39% reduction** in budget for FY 96, the Arts Endowment has totally reorganized the way it does business and has reduced its staff from its authorized 273 FTE to 149 employees. A major RIF was necessary; it took effect on December 19, 1995, and 89 employees lost their jobs. The agency has reorganized 17 Programs into 4 Divisions: **Heritage & Preservation**; **Education & Access**; **Creation & Presentation**; and **Planning & Stabilization**. State Arts Agencies and Regional Organizations are being assisted through **Partnership Agreements**. **Leadership Initiatives** enable the agency to assist projects of national significance and impact and projects that serve as models in one field or across the disciplines.

QUESTION: How will 1996 funding effect FTE levels?

ANSWER: The budget cuts caused, among other things, a Reduction in Force; 89 employees left the agency on December 19, 1995. The remaining staff now numbers some 149 employees, down from a high in the late 70s of over 330.

QUESTION: How many actual positions will be eliminated as opposed to open positions that will not be filled?

ANSWER: As mentioned above, the Arts Endowment's work force is currently at 149 individuals, following a series of job freezes, attrition of positions left unfilled, buy-outs, and, finally, a RIF of 89 employees.

QUESTION: Did you reduce the number of grant applications and grants awarded?

ANSWER: The Arts Endowment anticipates a reduction in grant applications from 16,000 to about 4,000 annually. The Endowment further anticipates a reduction in grant awards from about 4,000 annually to under 2,000. Although the complete picture will not be known until spring 1997, the above estimates are based on anticipated results of the budget cuts, Congressional directives, reorganization, and new grant application guidelines.

QUESTION: What specific actions have you taken to reorganize NEA?

ANSWER: The Arts Endowment historically has been organized around 17 programs that represented the various artistic disciplines (e.g. dance, theater, music, etc.) and other areas with which the agency has developed partnerships (e.g. state and local arts agencies). Under the overall direction of the agency's Chairman, two Deputy Chairmen oversaw the grantmaking and leadership activities in those areas. Most of the remainder of the Endowment staff fell in administrative areas (e.g. finance, grants, contracts, etc.), overseen by the Deputy Chairman for Management.

The agency was restructured in January 1996. Replacing the 17 former programs are four thematic divisions through which grants will be awarded: Heritage & Preservation; Education & Access; Creation & Presentation; and Planning and Stabilization. Specific targeted leadership initiatives will be housed within each division. In addition, the Endowment will continue its partnerships with state arts agencies that -- with regional arts organizations and local arts agencies -- provide the infrastructure for public support of the arts nationwide. These areas are overseen by the Deputy Chairman for Grants & Partnership. The Deputy Chairman for Management & Budget oversees the administrative, budget, guidelines, and panel areas. Overall direction still is provided by the Chairman.

The number of staff at the agency has been reduced by nearly 40% to a current level of 149. The new structure takes into account this severely reduced staffing level. This reduction was accomplished through job freezes, attrition, buy outs to eleven staff members who were eligible for retirement and through a reduction in force that terminated 89 employees in December 1995.

QUESTION: Did you consult with the arts community before implementing a reorganization plan?

ANSWER: The Endowment held discussions with the arts community before implementing the reorganization. Internal discussions began in the spring of 1995 with public discussions following almost immediately. Information sessions were held at many of the conferences convened by the national arts service organizations, at grant review and overview panel meetings, at the public meetings of the National Council on the Arts, and in one-on-one meetings between Endowment staff and the agency's constituents. In addition, a number of information/outreach sessions and application workshops have been held across the country since the new structure and application guidelines were put into effect.

QUESTION: What has been the general public reaction to your new structure?

ANSWER: In general, the public has been very supportive of the Endowment's efforts to remain responsive to the needs of artists, arts organizations, and the public despite the drastic reduction in funding sustained in the current fiscal year. Negative response for the most part has been directed not at the reorganization itself, but at the funding situation that prompted it. As noted in the question above, several members of the Endowment staff have conducted public sessions to solicit advice about the reorganization and to advise constituents about new guidelines and procedures. Those staff members consistently report that participants in the sessions generally are positive about the reorganization, are grateful that support will continue in the current year, but are extremely fearful about the prospect of reduced funding and increased competition for federal support.

PROGRAM CUTS DUE TO FUNDING REDUCTION

QUESTION: Based on 1996 funding levels, what programs will no longer be funded?

ANSWER: Based on the 1996 Conference Report funding level of $99.5 million, the 17 Programs that traditionally had certain dollars allocated to them (e.g., Dance, Folk Arts, Literature, Music) no longer exist as of February 1996. A final round of grants under the old Program structure was completed at the February 1996 meeting of the National Council on the Arts, and are currently being processed into final grant awards. All future grants will be processed under the new system of four divisions: Heritage & Preservation; Education & Access; Creation & Presentation; and Partnership, Planning, and Stabilization together with partnership grants and inter-division leadership initiatives. Furthermore, as a necessary step to reduce the number of applications processed by our smaller staff, we are limiting all organizations to one application per year. In addition, as instructed by the Congress, the Arts Endowment no longer offers seasonal support or subgranting, (except through state arts agencies and regional organizations), and has eliminated grants to individuals except Literature Fellowships, American Jazz Masters, and Heritage Fellowships in the Folk and Traditional Arts.

EFFECT OF REDUCED FUNDING ON THE ARTS IN AMERICA

QUESTION: How have the 1996 funding levels affected the agency's mission of providing art to the greatest number of Americans?

ANSWER: A reduction of 39% in the Endowment's current year funding will no doubt mean that the federal investment in providing art to all Americans will be curtailed greatly. It was for that reason that the Endowment restructured its grantmaking programs as described in the answer to an earlier question.

The Endowment's central mission remains unchanged: To foster the excellence, diversity, and vitality of the arts in the United States, and to broaden public access to the arts. Guidelines for the new structure were created holding those objectives paramount. One of the four thematic areas under which applications will be accepted in Education & Access. The new guidelines for that area state:

> The Arts Endowment believes that all Americans should have opportunities to experience the arts -- as learners, as makers of art, and as audience members. For this reason, priority is given to education and access projects that broaden and deepen educational experiences for Americans of all ages and to projects that make the arts available to those Americans who lack adequate opportunities to participate in the arts.
>
> Through this theme, the Endowment supports projects that seek to expose the widest public to excellence in the arts, while broadening understanding and appreciation of our heritage and culture. Access entails a deliberate effort to reach audiences that have not been reached before or that have been limited in their opportunities. It seeks to expand appreciation for and awareness of art forms to which exposure has been limited or nonexistent.

Funds offered through the other three theme areas, as well as through Leadership Initiatives and Partnership Agreements, will also further the agency's access goals.

QUESTION: How have arts organizations been affected by 1996 funding reductions?

ANSWER: Grants were awarded in several disciplines under the Endowment's old structure prior to the recent restructuring. The first grants will be awarded under the new structure by the end of this year. In order to assess the effect of the 1996 funding reductions on arts organizations, one may examine two categories that were funded in the most recent round of grants: Orchestras and Professional Theater Companies.

Orchestras are large and expensive operations. They employ 50 to 100 professional artists who make their livings by playing music. The orchestra field is one of the few arts fields in which an individual can earn a living as an artist. The drastically reduced funding available to orchestras this year imperils the livelihood of some of those artists. Grant funds available in the orchestra category were reduced by 50%, meaning that even the best of our country's orchestras took huge cuts in their federal support. The Boston Symphony and the San Francisco Symphony, for example, were each reduced from $236,400 to $122,900. Smaller orchestras that are extremely important to their communities -- not only for their concerts but also for their education programs for children and adults -- likewise were cut. The Charleston (SC) Symphony Orchestra was reduced from $14,400 to $7,500. The Marin (CA) Symphony Association fell from $10,000 to $4,000.

A similar 50% reduction was taken by professional theater company grantees. Panelists reviewing the applications were forced to deny appropriate levels of funding to organizations even though they provide the best in dramatic work, have strong outreach programming, and excellent educational activities. One likely effect of this reduction will be a decrease in the amount of new work produced, as theater companies are forced to rely on a standard repertoire that brings more predictable box office receipts. Baltimore's Center Stage, a leader in the American regional theater movement, had its funding reduced from $103,490 to $50,000. The Center for Puppetry Arts in Atlanta, which recounts such classics as Charlotte's Web and The Court of King Arthur in its Family Series, will see its funding cut from $112,040 to $60,000.

THE ENDOWMENT IN RURAL AND UNDERSERVED AREAS

QUESTION: Are you still committed to serving rural and underserved areas?

ANSWER: The Arts Endowment is vitally committed to serving all parts of the country, including rural and underserved areas. To that end, a number of strategies have been developed. The Endowment's new application guidelines make clear the agency's commitment to rural and underserved areas in several places. The Endowment expects to support many projects that address the needs of rural and underserved areas. Examples of such projects include:

- Touring performances and exhibitions and other activities in any art form that are designed to reach populations which ordinarily would not have the opportunity to participate in such events;

- Outreach projects that engage diverse communities in partnerships;

- National broadcast of significant television or radio programs on the arts; and

- Innovative uses of technologies to improve teaching and learning in the arts or to make the arts more widely available.

Review criteria in the Endowment's new guidelines have been developed so that the impact of each proposed project will be measured within its own context. This is to say that projects focusing on rural or underserved areas will not be penalized because they do not have large audience numbers or broad geographic reach.

Funds earmarked specifically for Underserved Set-Aside generally will be incorporated into the Partnership Agreements that the Endowment will negotiate with each of the state arts agencies. Successful projects recently funded through the Set-Aside include a grant to the State Foundation on Culture and the Arts in Honolulu, HI, to support the state's folk arts apprenticeship program. This program has had a significant impact on the vitality of traditional arts in Hawaii by ensuring that skills in slack-key guitar playing, *lauhala* weaving, and Laotian weaving are imparted to a younger generation of artists.

EFFECT OF FUNDING REDUCTION ON THE STATE AND LOCAL LEVEL

QUESTION: Do you anticipate that the cuts to your agency's budget will have an impact on other public funding sources, on the state or local levels?

ANSWER: It is too early to determine the full impact of cuts in the Endowment's budget on state arts appropriations, although we do know that the impact will not be positive. State arts agencies have been told by legislators not to expect any state dollars to compensate for federal reductions. State appropriations are down slightly for FY 96, with seven states cutting their arts budgets by more than 25%.

NON-FEDERAL FUNDING SOURCES

QUESTION: To what extent do you consider non-federal funding sources when formulating your budget and prioritizing your programs?

ANSWER: Non-federal funding sources have always been a consideration of the Arts Endowment, based on its philosophy of being an agency that serves as a catalyst, or a provider of crucial seed money. Federal funding is never the sole funding source for the recipient of an Endowment grant. By philosophy and by law (with few exceptions, every grant to an organization must be matched at least dollar for dollar by non-federal funds), the Endowment's funds usually represent a small portion of its grantees' overall budgets. On the other hand, none of the Endowment's grantees can "earn its way" in the marketplace -- the not-for-profit arts, by their nature, must undertake major fundraising efforts every year in order to continue to function. The Endowment's limited dollars have, for 30 years, provided catalytic assistance that helps grantees' fundraising efforts and generates substantial nonfederal support. The private sector (foundations and corporations) have made clear that they will not "pick up the tab" of Federal funds withdrawn.

LEADERSHIP INITIATIVES

QUESTION: You have set aside a pool of money for so-called leadership initiatives. What are these and whom will they serve?

ANSWER: As part of the Arts Endowment's reorganization, 1996 is the pilot year for Leadership Initiatives. These initiatives represent the Endowment's intent to support excellent projects of national significance or successful local models that might be replicated elsewhere to advance the arts in communities across the country. Approximately eight million dollars have been allocated for leadership initiatives in Fiscal Year 1996 and include projects that will promote partnership building, increase arts access and provide leverage for additional new sources of public and private sector support for the arts. Requests for proposals (RFPs) may be used in some instances in which the Endowment seeks a cooperator to accomplish or further certain goals. Projects will generally be brought to panels and will be reviewed by the Council as well. Examples of Leadership Initiatives include the Mayors' Institute for City Design, Chamber Music Rural Residencies, YMCA Literature Initiative, technical assistance for the Folk and Traditional Arts, and international partnerships. The 1996 Leadership Initiatives will serve residents in large and small communities throughout the country.

AGENCY PRIORITIES UNDER A FURTHER-REDUCED BUDGET

QUESTION: Assuming your budget is further reduced, would you place more emphasis on challenge grants, more awards to organizations, or more funding to the states?

ANSWER: Any of the options listed in the question would be difficult to implement with a budget that is reduced below current levels. The allocation for our Challenge Grant program in FY 1995 was $12.3 million -- for FY 1996, the allocation was only $7.5 million for Challenge. Since the Challenge Program's inception in 1978, 1,155 grants have been awarded totalling $336 million to arts organizations working in all artistic disciplines in 49 states and 3 territories.

Although Challenge Grants, as they were known in the Endowment's old structure, will no longer be made, 24 Challenge Grants totalling $3.76 million were made with FY 1996 funds prior to the January 1, 1996 reorganization of the agency. Additional grants of $100,000 to $250,000 each in the new Planning & Stabilization Division will be made for traditional Challenge-type financial stabilization and endowment-building projects. These grants will require a three-to-one match in non-federal funds. Grants of $250,001 to $500,000 in that Division require a match of five-to-one. All other Endowment grants to organizations require at least a one-to-one match from non-federal sources. In fact, the track record of Endowment grantees in raising matching funds is much higher, averaging $11 from non-federal sources for every federal dollar invested. In addition to the funds granted by the Endowment, the agency is in the position of acting as a national partner with foundations and other national organizations to catalyze and facilitate support for the arts across the country.

There are many compelling reasons to maintain a strong federal presence in the arts instead of increasing funding directly to the states. Federal support for the arts serves as a unique national source of recognition of excellence in the arts. It provides support for touring beyond state boundaries and other activities that ensure access to the best of the arts by people in all parts of the country. Finally, the Arts Endowment serves a national leadership role that would not exist were all funding to be routed directly to the states. Only the Arts Endowment provides critical support to projects of national, multi-state and/or field-wide significance.

IMPACT OF POSSIBLE FURTHER AGENCY FUNDING REDUCTIONS

QUESTION: What would be the impact on arts institutions if there were further reductions in funding for NEA?

ANSWER: The Arts Endowment has had a tremendously beneficial effect on the growth and quality of arts organizations across the country. In the 30 years since the Endowment was created by Congress, the number of nonprofit theaters has grown four-fold; orchestras have doubled in number and employ more than 20,000 artists, technicians, and administrators; professional opera companies number more than 120 today compared to 27 in 1965. Without Endowment support, some of these organizations will not survive.

Although there have been advances, across the arts, organizations are carrying large deficits, laying off staff, and cutting back services. The loss of federal support will have a serious negative effect not only in a direct way, but also through the ripple effect of lost private support. With Endowment funding declining in real dollar terms over the past several years, there already have been visible impacts. Twenty-seven theater companies have ceased operation in recent years. Dance companies have hired fewer dancers, employed them for fewer weeks each year, and mounted fewer new productions in order to respond to fiscal constraints.

STRENGTHENING OF GRANT AWARD PROCESS

QUESTION: Would you outline the reforms you have instituted to strengthen the grant award process?

ANSWER: Since my arrival at the Endowment, I have strengthened the grant award process at every stage. I instituted changes to assure that requirements for application and supporting materials insure adequate information for assessment of artistic excellence and merit. I tightened review criteria and made sure that there was senior staff oversight of the selection of panelists. The National Council on the Arts reviews applications in closed session working groups and uses written ballots which allow for a streamlined process to avoid conflicts of interest and makes it simpler for Council members in open session to vote separately on particular applications when they disagree with panel recommendations for grants or rejections.

I tightened reporting requirements that ensure that grantees file interim reports on their work before drawing down the final one-third of their grant dollars. I abolished subgrants except as administered by state and regional arts organizations as encouraged by Congress. I eliminated general seasonal operating support in favor of project-specific support, so the Endowment knows exactly what it's funding. I also tightened scope change requirements, so that grantees must now submit such a request in writing, in advance, in order to alter projects from that which was proposed in the approved application.

All of these changes remain in effect after the recent restructuring. Finally, the restructuring of the agency itself will make the grant award process more competitive than ever.

POSSIBLE COMBINATION OF NEA/NEH ADMINISTRATIVE SERVICES

QUESTION: Last year the Committee raised the issue of combining all administrative functions for the cultural agencies as a method to secure additional savings. What is the status of this proposal?

ANSWER: Following last year's hearing, and in accord with the Committee's interest, the Arts and Humanities Endowments created a small interagency group to explore combining administrative functions as a method to secure additional savings. Areas under consideration ranged from information management to administrative services, inspectors general, finance, personnel, et cetera, with consideration focussed on ways to maintain efficiency and save money. Ensuing House, Senate, and Conference actions with respect to the agencies' overall budgets, however, were so severe, and the cuts so deep, that instead of consolidation, RIFs became inevitable, and the resultant cuts in staff were so deep as to vitiate any additional savings.

STATUS OF AGENCY REAUTHORIZATION LEGISLATION

QUESTION: Your authorizing legislation has expired, and under the rules of the House funding cannot be appropriated for programs that are not authorized. What is the status of your reauthorization?

ANSWER: Bills reauthorizing NEA, H.R. 1557 in the House and S. 856 in the Senate, were reported by the authorizing committees in 1995, and are currently awaiting action in their respective houses.

QUESTION: Do you expect to see a reauthorization bill pass the Congress before this Committee completes its work on the FY 1997 budget?

ANSWER: Despite NEA's desire to have reauthorizing legislation similar to S. 856 enacted during the 104th Congress, we cannot say with confidence that it will happen given the major policy differences between the House and Senate bills and the lack of time remaining in the legislative calendar for serious deliberation.

POSSIBLE AGENCY PHASE-OUT

QUESTION: The House is considering a reauthorization bill that would phase out the NEA over the next two years. Has NEA developed a phase-out plan?

ANSWER: H.R. 1557, the measure reported by the House Economic and Educational Opportunities Committee provides for a **three-year** phase-out of NEA funding. S. 856, reported by the Senate Labor and Human Resources Committee, provides for a five-year reauthorization of the agency. The Clinton Administration strongly supports reauthorization of the agency and continued Federal funding for the arts. Chairman Alexander expects the agency to continue, and has not developed a phase-out plan.

QUESTION: Is two years sufficient, if not, what time frame is appropriate?

ANSWER: The question is unclear - are two years sufficient to prepare the nonprofit arts in the United States for a total cut-off of Federal funding assistance, or are two years sufficient to develop a funding mechanism to replace the National Endowment for the Arts?

With respect to the first question, NEA is the largest source of funding for the nonprofit arts in the United States. Recent studies, including a comprehensive report prepared by the Rockefeller Foundation suggest that private foundations contribute over $1 billion each year to the arts and culture, and cannot and will not provide more. Elimination of Federal assistance in the absence of replacement funding will severely impact smaller arts organizations in inner city and rural areas, and especially the education and outreach activities undertaken by large arts organizations. NEA does not believe that the one year remaining under a two-year phase out concept agreed to by the House Republican leadership last summer provides nonprofit arts organizations sufficient time to locate replacement sources of funding for the work they do in their communities.

With respect to the second question, even the $99.5 million reduced-level of funding cannot be replaced in the absence of a dedicated source of funds. Unless Congress is willing to put aside appropriations for the purpose of creating the corpus of a self-sustaining endowment, or enact some other dedicated source (tax credit for contributions, national lottery, extended copyright term royalties, among other suggestions), the Federal funding currently provided cannot be replaced in two years, or necessarily in ten years.

Foundation experts have calculated that a corpus in the range of $3 billion to $8 billion would be needed to sustain annual giving in the range of $100 million to $162 million. Such a fund raising effort would take many years, and require a nationwide effort that far exceeds NEA's resources and capability.

PRIVATIZATION OF THE AGENCY

QUESTION: A number of Members of Congress have suggested the NEA should be privatized. Have you looked at this?

ANSWER: Yes, the Endowment has considered this issue very carefully. As noted before, developing an endowment corpus sufficient to sustain current levels of giving would probably be extremely difficult without government assistance. NEA is a grant-giving agency which relies almost entirely on the receipt of Federal appropriations. The agency has no stream of income, and unlike public television and radio, no assets that can be managed to create income. Under the circumstances, the agency has no prospect of raising capital in the traditional equity or bond markets. The only current capitalization option open to the agency is fundraising through charitable gift giving.

Congress could facilitate privatization of NEA by creating a non-appropriation based dedicated funding source of some kind. But as I indicated before, a corpus in the range of $3 billion to $8 billion would be needed to sustain annual giving in the range of $100 million to $162 million.

The agency is very interested in developing a partnership with the commercial entertainment industry which acknowledges the important role the nonprofit arts play in providing creative material, labor and other resources to the industry. However, these discussions are in the preliminary stages.

QUESTION: Do you have legal authority to go out and raise money from the private sector to set up a true endowment?

ANSWER: Under our authorizing legislation, the Endowment has gift acceptance authority. We do not currently have authority to invest funds nor to earn interest on gift funds. In light of these factors, I do not believe that realistically we have sufficient legal authority to raise funds for a "true endowment."

QUESTION: Are you authorized to invest private sector funds and earn interest, or are you restricted to receiving gifts and making grants?

ANSWER: We are not authorized to invest private sector gift funds nor are we authorized to earn interest on gift funds. Under federal appropriations law, an agency must have express statutory authority for such activities. While currently we do receive some funds from the private sector, we are limited to expending those funds on activities that are within the agency's mission, including the making of grants. With authority to solicit, invest and retain earned income, the Endowment would be able to supplement appropriated funds.

PRIVATE SECTOR REPLACEMENT OF THE FEDERAL DOLLAR

QUESTION: In your opinion, can the private sector make up the shortfall if the federal appropriations for the arts is eliminated next year?

ANSWER: The evidence clearly indicates that the private sector will not make up the shortfall if federal funding is eliminated. The issue of private sector funding for the arts is studied on a regular basis by the foundation and corporate community. The most recent comprehensive study, prepared by the Rockefeller Foundation in 1995, indicated that support for the nonprofit arts in America rests upon a delicate balance between private and public sector funding dependent upon each other. Nevertheless, when viewed across the spectrum of organized and individual philanthropy, giving to the arts and culture rates quite low -- about 7.5 percent of the total -- compared to 45.3 percent to religious organizations, 13 percent for education, 9 percent for health and 9 percent for human services related causes. As federal support for other social programs diminishes, and competition for scarce foundation dollars increases, the arts may receive even less.

The Rockefeller study indicates that NEA has been the largest single source of funding for the arts since 1976. All foundation funding for the arts and culture in 1992, the most recent year for which there are complete figures, totalled $1.36 billion. However, all of the foundations surveyed in the Rockefeller study, with one exception, reported that they will not be able to increase funding for the arts and the humanities. The study further concluded that most foundation dollars are given locally, concentrating on the largest, most prestigious institutions, often in response to capital campaigns. Small, innovative and community-based arts organizations will lose the most in the competition for private dollars and declining public funds. Projects of national scope like dance touring, Mayor's Institute, and other leadership initiatives would disappear without the Endowment's national perspective and sponsorship.

AMERICAN CANVAS INITIATIVE

QUESTION: I understand that you are planning to hold a series of town meetings throughout the country to examine the question of broadening financial and public support for the arts. Could you tell us a little more about this effort?

ANSWER: The Endowment, in its unique national role, is launching the American Canvas initiative in June, 1996, to find innovative strategies, models and partnerships from across America that help integrate the arts more fully into the fabric of communities. American Canvas will bring together, first on the local level and then nationally, people from all sectors of society who understand how the arts transform communities. The outreach initiative will be a catalyst for new strategies and an opportunity to canvas the best model projects. Our findings will be analyzed, compiled and shared with communities, throughout the country. A final report will be disseminated widely. American Canvas will convene six community forums and a national meeting with leaders and representatives from the following sectors: the arts, education, business, government, civic groups, consumer organizations, religious organizations, foundations, and others. Community and regional representatives will be invited to attend and, as well, the forums will be open to the public. Forum locations will reflect diversity in geography, size and demographics. This privately-funded initiative is aimed to address the following areas: discover how the arts serve communities; identify changes in community funding infrastructures; determine how communities can adapt their models; and develop new collaborative strategies. The American Canvas Action Plan will be published in 1997 and will include recommendations to communities for ways in which the arts can improve the quality of life, education, local economy and social conditions. The Plan's goal is to assist communities in building a funding infrastructure for the arts by identifying existing strategies and new models that can respond to future changes in the funding environment, and to identify and encourage new collaborations at the national and local levels in both the private and private sectors.

CURRENT RESTRICTIONS ON GRANTS

QUESTION: The 1996 conference report placed a number of restrictions on the Endowment's operations. For instance, it eliminated subgrants, seasonal operating support, and most grants to individuals. What is NEA's current policy with regard to these restrictions?

ANSWER: In light of the clear indication of congressional intent, and in order to avoid having to seek the return of funds if the current version of the Interior Conference Report becomes law, we are complying with the following restrictions:

1. Limiting grants to individuals to Literature fellowships and honorific Folk and Traditional Arts Heritage awards and American Jazz Master awards;

2. Funding of specific projects only, with no grants for seasonal support; and

3. No subgranting except through States and regional arts organizations.

In 1994, over a year in advance of the passage of the initial FY 96 Conference Report, I had adopted two internal policies which addressed these issues. First, I eliminated virtually all subgrant programs at the Endowment. In addition, I directed that program guidelines include language requiring greater specificity for the activities for which applicants would use Endowment funds if a grant were to be awarded.

QUESTION: There has been criticism about a number of NEA grants. Do you think that the additional controls put in place will resolve what many see as a serious problem?

ANSWER: We are sensitive to the criticism of some of the grants this agency made in the past. During my tenure as Chairman, I have worked very hard to improve the grant-making process, putting in place new procedures outlined in response to an earlier question. I hope the Committee will bear in mind that art is a reflection of society and is often controversial by nature.

We believe deeply in our mission to foster the excellence, diversity and vitality of the arts and to make them accessible to all Americans. The changes I have made are designed to accomplish this mission.

GRANTS TO INDIVIDUALS

QUESTION: Have you discontinued most grants to individuals?

ANSWER: Yes, we are limiting grants to individuals to Literature fellowships and honorific Folk and Traditional Arts Heritage awards and Jazz Master awards.

SUBGRANT PROGRAMS

QUESTION: How many of the objectionable art projects have been under a subgrant program. What action has NEA taken for subgrant programs?

ANSWER: In its thirty-year history, the Endowment has awarded over 110,000 grants and only a minute fraction, perhaps 40 of those grants, have been viewed as objectionable by some people. While I cannot say with precision which have been awarded under the agency's prior "subgranting" practices, we have eliminated all subgrant programs, except for those programs operated with the states and regions. I would note two things for the record: First, some of the controversies in the past have involved major institutions that, in an Endowment-funded season or exhibition, included particular pieces or performances. We no longer grant seasonal support grants. Second, not infrequently, opponents of the Endowment base their criticism upon projects or individuals that the Endowment has not funded in any manner. The Endowment can respond to these inaccurate charges, but it cannot prevent them from being made

SUPPORT TO INDIVIDUAL ARTISTS

QUESTION: Does NEA support continued support to individual artists?

ANSWER: The Endowment emphatically supports the ability to award grants to individual artists. As I stated in my testimony, "without the artist there can be no art." Some of this country's finest artists, composers, choreographers, jazz musicians, and writers received the break they needed with the help of the National Endowment for the Arts. I hope that our proud history of support for individual artists can be resumed.

GRANTEE ACCOUNTABILITY

QUESTION: How are grant recipients held accountable?

ANSWER: Accountability mechanisms have been established in our authorizing legislation and under Endowment policies which remain in place after the restructuring. Grant recipients are held to specific reporting requirements to ensure accountability both financially and programmatically. The Endowment monitors a grantee's activities by multiple means: it reviews interim progress, and final reports; conducts site visits where appropriate as part of ongoing application review; and reviews and assesses both cash disbursement requests and written requests for amendments in the time, scope, or budget of a grant. Grantees must submit progress reports before receiving the final 1/3 cash disbursement.

RECOVERY OF GRANT MONIES

QUESTION: Is there a mechanism in place to recover grant funding when the final product is different from that agreed to in the grant contract?

ANSWER: There are three primary mechanisms by which the Endowment determines that grant monies must be recovered: as part of the process of audit resolutions by the Endowment's Inspector General; as part of the grants management process administered by the Grants Office: and as part of the overview and supervisory process by individual disciplines. Each grant repayment is highly dependent on the individual facts and circumstances. Recovery of grant monies takes four forms: repayment of grant funds; deobligations of grant monies not yet disbursed; set-offs against other grants; and disallowance of the use of Endowment funds for particular purposes. In addition, frequently the Endowment is able to negotiate arrangements with grantees that assure that the funds will be used appropriately, and thereby avoid any repayment requirement.

REDUCED FUNDING AND PROGRAM ACCOUNTABILITY

QUESTION: Will the 1996 funding level affect program accountability?

ANSWER: In light of the reduced 1996 appropriations, the Endowment has had to reduce its staff by almost one-half. At the same time, under the restructuring we anticipate significantly reduced applications and grant awards. While the level of staffing remains a serious concern, particularly in light of the remaining open grants under the prior program structure, we are working to maintain the same systems of accountability.

AGENCY PERFORMANCE MEASURES

QUESTION: Last year you indicated to the Committee that you were developing performance measures for your programs. What is the status of this effort?

ANSWER: The Arts Endowment's preliminary efforts to develop performance measures for our programs was completely overtaken by the agency's need, due to the FY '96 budget cut of nearly 40%, to reorganize totally the way it does business. It seemed pointless to develop performance measures for categories of support and programs that no longer exist. As the agency moves into new modes of funding, dealing with Partnership Agreements, Leadership Initiatives, and Category Grants, it will need to begin development of performance measures for those areas. The Endowment wishes to join the government-wide efforts in this regard; that effort will begin as soon as is reasonable and feasible within staffing and other constraints.

NATIONAL AND STATE FUNDING LEVELS

QUESTION: The reauthorization bill in the House proposes to shift funding from the national programs to the states. What is your view on this issue?

ANSWER: In addition to the financial catalyst role discussed previously, there are many compelling reasons to maintain a federal role in the arts instead of turning over more funds to the states. Federal support for the arts serves as a unique national source of recognition of excellence in the arts. It provides support for touring beyond state boundaries, radio and television arts programming, and other activities that ensure access to the best of the arts by people in all parts of the country. Finally, the Arts Endowment serves a national leadership role that would not exist were all funding to be routed directly to the states. Only through the Arts Endowment is substantial, often critical support offered to projects of national, multi-state and/or field-wide significance.

QUESTION: What do you see as the appropriate level of funding to the states?

ANSWER: The current level of funding to state arts agencies is appropriate and effective in ensuring that all states share in the benefits of federal arts support; in helping to maintain a relatively stable network of state arts agencies; and in providing incentive for state governments to continue some meaningful level of commitment to the arts. Any increase in the proportion of funds designated for state arts agencies would bring substantial disadvantages to the arts in America.

QUESTION: If additional funding were provided to the states, how would it affect your ongoing programs?

ANSWER: If additional funding to the states came at the expense of support for other ongoing programs, it would have a very negative impact on those programs and on the arts generally. Any reduction in funding available for direct grants to arts groups would further diminish the unique and irreplaceable federal role in support of the arts. Only a strong national federal arts agency is in a position to identify and support projects with national or regional impact. Only direct federal grant dollars bring the national recognition that has proven so critical in leveraging resources from the private sector. Only an agency with a national perspective can provide the leadership needed for national progress in arts education. Finally, only a federal arts agency can develop partnerships with other federal agencies that use the arts as a tool for achieving national purposes, such as assistance in drug prevention or comprehensive arts education.

POSSIBLE AGENCY PHASE-OUT

QUESTION: Given the budget cuts how have you scaled back your 1996 program and what plans have you made to phase out the NEA?

ANSWER: As mentioned earlier, the Arts Endowment has reduced its staff in a major way, has ended its Programs and funding categories, has totally reorganized and restructured, and has issued new guidelines to the field. The Arts Endowment has not, however, made plans to phase out. The Arts Endowment is aware of the intention of the House, as expressed in the Conference Report, to end the Arts Endowment's existence at the end of Fiscal 1997. However, as also reflected in the Conference Report, the Senate disagrees with the House in this matter, and does not agree that the Arts Endowment's existence should end. Nor does the Administration, an intention reflected by the President's budget request and projections that continue to request funds for the Endowment.

Given the drastic cuts, RIF, and complete reorganization being experienced by the agency this year, and the differences of opinion concerning the future, the Arts Endowment believes that plans for phasing out are premature at this time.

KEY ROLE OF THE ENDOWMENT IN THE ARTS IN AMERICA

QUESTION: Last year you indicated that you believed there was a necessary federal role in the promotion of the arts in America. If, as the House has indicated it wishes, the NEA is phased out, what do you envision happening to the arts in America? Will the private sector, the states, the schools or foundations pick up the slack?

ANSWER: The evidence indicates they will not pick up the slack. The President's Committee on the Arts and the Humanities issued a report in 1995 entitled "Looking Ahead: Private Sector Giving to the Arts and the Humanities." It states clearly, "Private charitable giving is not growing with a stronger U.S. economy." Of all the private philanthropic foundations surveyed for the report, only one reported that it would increase its funding for the arts or the humanities. Increased competition from health and human service requests exacerbate the problem for the arts. Foundation officials declared that the size, scale, and expertise needed for national planning and strategic funding for the arts exist only at the National Endowment for the Arts.

Individual donors account for the majority of private giving. The size of individual contributions has declined; the size of contributions to the arts has declined more rapidly than others.

State appropriations have decreased in the current fiscal year. Seven state appropriations have declined by more than 25%. State legislators have made it clear to state arts agency directors that state appropriations are not forthcoming that will compensate for decreases in federal support.

FUTURE OF STATES ARTS AGENCIES

QUESTION: Without federal funding what do you anticipate happening to the state arts agencies? Unlike the Humanities councils these state arts agencies are funded by the states. Do you believe they would continue to survive absent the federal funding?

ANSWER: More than one-half of the states receive one-half of their arts budgets from the NEA:

o To fund activities for which state funds may not be as readily available -- including activities in underserved areas;

o To provide stability where state budgets are volatile; and

o To serve as an incentive for state arts funding.

State arts agencies in smaller and rural states also depend on the Endowment to provide a high proportion of their budgets.

As the establishment of the Arts Endowment led to the creation of most state arts agencies, its elimination would lead to the loss of at least some of these agencies. Just within the last five years, the availability of Endowment grants has helped to dissuade a number of fiscally hard pressed states from eliminating their arts agencies. If the Arts Endowment went out of existence, some state arts agencies would find it difficult to survive the loss of federal dollars. More agencies would find it difficult or impossible to survive the loss of the federal incentive and the federal example, which have done so much to attract state and private support.

LOSS OF FEDERAL FUNDS TO THE ARTS AND HUMANITIES

QUESTION: Do you agree with the assessment in a recent report from the President's Committee on the Arts and the Humanities which concluded that more funding is available to the arts than the humanities from all public and private sources? In short, the arts will be less adversely affected by a loss of federal funding than the humanities.

ANSWER: It is very difficult to segregate arts funding from humanities funding in the data on private and corporate foundation giving to the "arts and culture" sector. The foundation figures for the humanities in the President's Committee report do not include grants to college and university humanities departments or fellowship programs for individual scholars. Because fellowships and higher education studies are both significant ways the humanities are supported, it is impossible to say definitively how much private funding goes to the humanities without better data. The President's Committee's report, Looking Ahead, makes that point.

The available data does suggest, however, that the arts benefit substantially from private and corporate foundations. The arts have an elaborate nonprofit organizational infrastructure: theaters; museums; dance companies; musical ensembles; video workshops; nonprofit galleries; and educational workshops; all of which compete for a limited amount of funding. Arts funding is dependent upon federal, state, local, foundation and other private support.

CORPORATE GIVING TO THE ARTS

QUESTION: According to the President's Committee report corporate giving to the arts was at an all time high of $875 million in 1994. Given that fact why should we worry about the loss of the federal funding in terms of the overall state of the arts in America?

ANSWER: The President's Committee report presents findings from the two principal sources on corporate giving to the arts - the Conference Board and the Business Committee for the Arts (BCA), who use different methods of collecting their data. The BCA surveys a group of corporations, most of whom are smaller than those in the Fortune 1000, and projects the results onto the universe of companies with annual revenues of at least $1 million. Some researchers question whether the results from interested respondents are applicable to a wider range of companies. It is the BCA that reports $875 million to the arts in 1994, based on its methods.

The Conference Board analyzes information (voluntarily submitted) from its members who are limited to the Fortune 1000. They report, for 1994, that the companies it surveys increased their giving only slightly, 3-5%, which does not comport with BCA's findings. The BCA and the Conference Board have disagreed on trends in the past, and clearly continue to differ now.

In addition, the BCA reports that the average size of gifts from the companies it surveys rose from $1,000 in 1991 to $2,000 in 1994. This increase does not achieve the kind of sustaining support that cultural organizations need from private donors to meet operating costs and produce programs.

Corporate donors who were interviewed for the President's Committee report joined their counterparts in the private foundation world in noting that they could not make up the gap caused by cuts in federal funding and were not planning to increase their cultural funding portfolios. Corporations are changing their philanthropic patterns and the traditional categories, like the arts, are being lessened in favor of programs that help children, including programs for reduction of substance abuse, expansion of multicultural experiences, and other, often non-arts related projects.

QUESTION: One rationale for the NEA has been the notion that the NEA provides a kind of stamp of approval, national imprimatur, to guide the private sector and corporate contributions. Do you believe that is still the case given the recent controversies and that corporations are increasingly making their own decisions based on location and benefit to their employees?

ANSWER: While corporations and foundations have always made their funding decisions based on their specific priorities, they often have used the Endowment as a guide in assessing the artistic excellence of the projects proposed to them for funding. No other arts funding source in the country has as rigorous a review process as the Arts Endowment. Corporations are aware of the scrutiny received by each applicant, and know that those who receive grants have survived intense competition.

In the Endowment's thirty-year history, it has awarded more than 110,000 grants. Of those, a handful have generated controversy in the past several years. There is no evidence that these isolated cases have caused corporations to alter their funding strategies or reassess their positions *vis a vis* the Arts Endowment.

ARTS ACCESS IN ABSENCE OF THE AGENCY

QUESTION: What do you think will happen to arts access in the absence of the NEA?

ANSWER: Many of the Endowment's grants have supported projects that make the arts more accessible to Americans across the country. Without the Endowment, many of these projects could not take place. The New York-based Paul Taylor Dance Company, for example, recently performed in more than 20 cities and towns in Wisconsin. Arts programming on television such as "Live from Lincoln Center" may originate in New York, but reaches millions of people nationwide. National arts service organizations such as Dance USA and OPERA/America are based in Washington, DC, but provide invaluable information and services to artists across the country who in turn serve their home communities. There is no other entity with the capacity or the mission of making the best of the arts widely available. Without the Endowment, many of these projects simply would not take place.

IMPACT OF FUNDING CUTS ON INDIVIDUALS

QUESTION: Do you believe the loss of NEA funding will have a greater impact on the individual artist rather than the arts institution?

ANSWER: The Arts Endowment now provides very limited support to individual artists through the form of Literature Fellowships. National Heritage Fellowships in the Folk & Traditional Arts, and Fellowships for American Jazz Masters. There is no doubt that individual artists in other fields will be hurt badly by the loss of federal support. In the field of dance, for example, choreographers require long periods of intense concentration to create new work. They often must hire dancers to experiment with their ideas during the creative process. The Endowment's fellowships to choreographers, now no longer in existence, constituted their only national source for such support. Visual artists and composers often teach or work in other professions because they cannot support themselves from their art. Arts Endowment fellowships, no longer available, allowed them to devote uninterrupted time to their creative pursuits. The work that resulted from that time now may not come into being.

Arts organizations, because of their establishment as nonprofit corporations, benefit from the tax-deductible contributions of American citizens. They often employ development staffs that pursue many avenues to raise funds. Such options are not available to individual artists.

Also, arts organizations often support individuals through the commissioning of new works. With funding sources become scarce, organizations will be less likely to be able to commission new works to produce from playwrights, choreographers, etc.

QUESTIONS SUBMITTED BY REP. SIDNEY YATES

EFFECT OF REDUCED FUNDING ON THE ARTS IN AMERICA

QUESTION: This committee cut your FY 1996 budget by nearly $63 million (39%). I can only imagine the devastation this has caused to the arts in America. Can you give me some examples of how these cuts have hurt artists and the people who depend on the arts?

ANSWER: The following are examples of projects that now are endangered due to cuts in the Arts Endowment's budget:

o South Dakota Sioux quiltmakers, beaders, and pow wow dancers who were assisted by the South Dakota Folk Arts Program have seen this support eliminated. Similar folk arts programs that assist elders to teach traditional crafts to young people have been lost in Ohio, California, Florida, Massachusetts, Pennsylvania, Wyoming, and Nebraska;

o A summer reading league in Buffalo, NY, that rewarded children who have finished a selected reading list with tickets for themselves and an adult to a Buffalo Bisons baseball game is not eligible to apply to the Endowment this year;

o Stellar arts organizations such as Appalshop in Whitesburg, KY, formerly have been supported for many of their programs. Appalshop celebrates Appalachian culture through live performances, radio programs, and the touring Roadside Theater. Appalshop now will be limited to one application to request support for one project;

o Artists residencies, supported by the Endowment, which have been conducted by more than 14,500 visual artists, writers, dancers, and musicians in local elementary and high schools in every state will be cut; and

o The Endowment has supported many programs for youth-at-risk. The Henry Street Settlement in Brooklyn, NY, provides programs for youth who have had trouble staying in high school. They are helped to perfect their language skills through writing and performing their own plays. The same organization brings together fourth graders and the elderly in the South Bronx to do visual arts and theater projects. Both programs are now in danger.

AMERICAN CANVAS INITIATIVE

QUESTION: Tell me about the American Canvas project. Why do you plan on holding these town meetings throughout the country? Who is paying for this project?

ANSWER: The Endowment, in its unique national role, is launching the American Canvas initiative in June, 1996, to find innovative strategies, models and partnerships from across America that help integrate the arts more fully into the fabric of communities. American Canvas will bring together, first on the local level and then nationally, people from all sectors of society who understand how the arts transform communities. The outreach initiative will be a catalyst for new strategies and an opportunity to canvas the best model projects. Our findings will be analyzed, compiled and shared with communities throughout the country. A final report will be disseminated widely. American Canvas will convene six community forums and a national meeting with leaders and representatives from the following sectors: the arts, education, business, government, civic groups, consumer organizations, religious organizations and foundations. Community and regional representatives will be invited to attend and the forums will be open to the public. Forum locations will reflect diversity in geography, size and demographics. This privately funded initiative is aimed at addressing the following areas: discovering how the arts serve communities; identifying changes in community funding infrastructures; determining how communities can adapt their models; and, developing new collaborative strategies. The American Canvas Action Plan will be published in 1997 and will include recommendations to communities for ways in which the arts can improve the quality of life, education, local economy and social conditions. The publication will assist communities in building a funding infrastructure for the arts by identifying existing strategies and new models that can respond to future changes in the funding environment and also identifying and encouraging new collaborations at the national and local levels in both the private and private sectors.

POSSIBLE PHASE-OUT OF AGENCY

QUESTION: The Republicans on the House Authorizing Committee and some members of this Committee believe that FY 97 should be the final year the NEA receives federal funding. Has the Administration taken a position on this?

ANSWER: The Administration strongly opposes phase-out of Federal funding for the arts, and supports enactment of legislation to reauthorize the National Endowment for the Arts.

QUESTION: Is NEA preparing for a phase-out?

ANSWER: Again, the Clinton Administration strongly opposes phase-out of Federal funding, as does the Senate. The Conference Report accompanying H.R. 1977, FY 96 Interior Appropriations legislation states:

> The managers on the part of the House continue to support termination of NEA within two years, and do not support funding beyond FY 1997. The managers on the part of the Senate take strong exception to the House position, and support continued funding for NEA. The managers expect this issue to be resolved by the legislative committees in the House and Senate.

However, the House and Senate legislative committees have taken opposing policy positions. The Senate committee reported legislation, S. 856, would reauthorize NEA for five years, while the House bill, H.R. 1557, would phase out NEA in three years. Given the total lack of Congressional consensus on the issue, and the strong support of the Administration, NEA is not preparing for a phase-out.

EFFECT OF AGENCY ELIMINATION ON THE ARTS IN AMERICA

QUESTION: Wouldn't eliminating NEA devastate the arts in America?

ANSWER: Eliminating NEA will devastate the arts and it will close off the average citizen's access to the arts. In the absence of funding support, many arts organizations throughout the country will close their doors. Many of these will be small and medium size organizations located in rural and inner city areas. Larger arts organizations like museums, orchestras and theaters will discontinue the Endowment-supported education and outreach programs which they sponsor in their communities. Millions of Americans, especially children, who had the opportunity to experience the arts thanks to NEA support will now be denied that opportunity. We will find that more and more, the arts will be confined to communities with wealthy patrons and healthy tax bases. Arts education partnerships between the states and NEA will be devastated. Thousands of students who benefit from NEA supported artists-in-residence in their schools will lose that opportunity. Dance touring will cease, denying dance to Americans in rural America and denying dance opportunities for young, taxpaying dance professionals. The NEA supported Mayor's Institute for City Design will cease to exist. These are just a few examples of the many worthy programs that would be devastated by a cut-off of Federal funding. Finally, this nation, as the only wealthy, civilized country in the world refusing to recognize the contribution of the arts to its culture and well-being, would only sink in stature in the eyes of the rest of the world.

POSSIBLE COMBINATION OF CULTURAL AGENCIES' ACTIVITIES

QUESTION: In order to preserve the federal role in supporting the arts, what do you think about dissolving the NEA and moving its functions to the Kennedy Center and the Smithsonian?

ANSWER: NEA is opposed to transferring jurisdiction of popular programs to other agencies. Such a policy makes little sense from a cost savings perspective. Staff to administer the transferred programs would have to be hired by the receiving entity, thus reducing economies-of-scale at both entities. Moreover, the mission and purpose of other agencies is not the same as that of the Endowment, and we believe that such efforts would mean a substantial loss to the American public now well-served by each of these separate entities.

COWBOY POETRY FESTIVAL IN ELKO, NEVADA

QUESTION: I read with great interest about the cowboy poet festivals featured in this week's issue of People Magazine. Am I right in saying that these festivals were made possible by the NEA?

ANSWER: Yes, you are correct. The founder and artistic director of the annual Cowboy Poetry Gathering in Elko, Nevada, Hal Cannon, credits National Endowment for the Arts support as essential to the launching and subsequent success of this extraordinary event. At a

1995 meeting of the National Council on the Arts, he recalled the reluctance of many prominent corporations and private foundations to support his vision of a major festival of Western traditional arts for ranching people and how in the event's early years the Endowment was its first and only major funder. The Endowment's Folk Arts Program directly supported the Gathering with the following grants:

- $22,000 in FY 85;
- $14,000 in FY 86;
- $31,500 in FY 91 to add an Hispanic cowboying traditions component to the event;
- $25,000 in FY 94 to highlight Native American western ranching traditions; and
- $35,400 in FY 95 to produce an exhibit of the finest of American cowboy craft--saddles, spurs, bits, ropes, and other tack.

Indirectly, the Folk Arts Program supported the Cowboy Poetry Gathering through program development grants to the Western Folklife Center (the sponsoring organization) in Elko of $35,000, $35,000, and $34,000 in fiscal years 1986, 1987, and 1988, respectively. Over time, federal funds were used to leverage new private and public support, and today, the Gathering is largely self-supporting. Its impact on Western culture has been wide reaching, with an estimated 150 similar events modeled after it.

ARTISTS-IN-RESIDENCE SCHOOL PROGRAMS

QUESTION: I want to touch on some of the things you mention in your statement. You said that because of cuts to your FY 96 budget, the Endowment won't be able to put 14,500 artist-in-residence in public schools throughout the country. How many children will this impact?

ANSWER: The figure cited represented artist residency activities in 4,700 schools. Given an average population of 516 students in each of those schools, the cuts in the Endowment's FY 1996 budget could result in more than 2.4 million students in our public schools not receiving the services of these artists. It is also important to note that many of these residencies involve not only the artists' work with students, but their training of teachers and assistance with local curriculum development as well. Thus, our diminished capacity to support artist residencies has both immediate and long-term effects as fewer teachers learn more effective ways to integrate the arts into the overall curriculum of the schools.

ELIMINATION OF AGENCY FUNDING CATEGORIES

QUESTION: You also said that "Entire categories of assistance have been eliminated." Which categories have been eliminated?

ANSWER: In this transition year, Fiscal 1996, a year in which we processed many applications under the "old structure" and are now beginning to do business under the new structure, many categories had to be eliminated. These included nearly all categories of assistance to individual artists, because of Congressional action, including Composers' Fellowships, Choreographers' Fellowships, Design Grants to Individuals, Fellowships for Museum Professionals, and Jazz Performance, Composition, and Study Fellowships. Additional categories that were eliminated included New American Works in Opera-Musical Theater; the Arts Plus category in the Arts in Education Program; Music Festivals; Music Professional Training; Advancement Grants (for Emerging Organizations); Expansion Arts Organization grants in Dance, Music, and Theater; Film Preservation; Film/Video Production; and support of Museums in Collection Maintenance and Conservation.

IMPACT OF AGENCY ELIMINATION ON THE ARTS IN AMERICA

QUESTION: What impact has this had on the arts?

ANSWER: The impact this has had on the arts cannot be fully known for many months, or, in the case of many areas such as Arts Education, Museum and Film Preservation, and New American Works in Opera, for many years. It is clear that many priceless works in the visual and media arts, part of America's cultural heritage, will continue to deteriorate, and eventually be lost to future generations. Children and young people whose skills, discipline, and confidence would have been greatly strengthened by exposure to soundly-based, first-rate arts education, will be permanently robbed of these crucial values. The repertories of our great American opera companies will not be enriched and replenished by American work -- a major step backward for companies that have, in the past 15 years, enjoyed growing audiences and new excitement due to the Endowment's encouragement and seed money helping bring these groups into the new Millennium.

It is important to note that with the new, reinvented agency, all of the former categories have been eliminated, even though, within available resources, many of the types of organizational activities formerly eligible for assistance will continue to receive limited support.

LEADERSHIP INITIATIVES

QUESTION: As part of your agency-wide restructuring, you created a new Leadership Initiative project to "support important arts projects of national scope -- projects that would not happen, but for federal leadership and funding." Can you give me some examples of these projects?

ANSWER: Yes, 1996 is the pilot year for Leadership Initiatives. These initiatives represent the Endowment's intent to support excellent, catalytic model projects in all disciplines and fields which will significantly advance the arts in communities, both large and small, across the country. Approximately eight million dollars has been allocated for Leadership Initiatives in Fiscal Year 1996 that include projects to promote partnership building, increase arts access and provide leverage for additional new sources of public and private sector support for the arts. Requests for proposals (RFPs) may be used in some instances in which the Endowment seeks a cooperator to accomplish or further certain goals. Projects will generally be brought to panels and will be reviewed by the Council as well. Examples of Leadership Initiatives include the Mayors' Institute for City Design, Chamber Music Rural Residencies, Literature Initiative with the YMCA, technical assistance for the Folk and Traditional Arts, international partnerships, et cetera. Leadership initiatives will serve residents in communities both large and small across the country.

OFFICE OF ENTERPRISE DEVELOPMENT

QUESTION: You say in your testimony that you are establishing an Office of Enterprise Development in order to "seek new ways of creating supplemental funds for the non-profit arts." How do you envision this office operating?

ANSWER: The purpose of the Office of Enterprise Development is to support the Endowment in promoting excellence and access in the arts nationwide by searching out ways to augment the agency's budget and to expand the funding pool for the arts and by implementing such initiatives as accomplish this purpose. OED is not a fund raising office, per se. The NEA is very aware that the funding pool for the arts is strained. It would be counterproductive for the agency to compete for funds that, otherwise, would go directly to constituent organizations. The challenge is to find or create new revenue streams. Restrictions in the Endowment's authorizing legislation make this endeavor more difficult than it would be for a private, non-governmental charitable organization.

QUESTION: How much money do you expect it to generate for non-profit groups?

ANSWER: It is too early to predict accurately how much new money the Office of Enterprise Development will be able to generate for the non-profit arts. Early indications are that there is an appeal for companies that have previously not donated to the arts to give to an organization with national scope and visibility. The incentive is linked to the fact that the NEA represents a national commitment to the arts and companies wish to be associated with this national commitment.

THE PRIVATE SECTOR REPLACEMENT OF THE FEDERAL DOLLAR

QUESTION: Do you know if private contributions to the arts have been able to make up for reduced federal assistance?

ANSWER: All indications are that private sources have not and will not be able to make up for reduced federal assistance. **Looking Ahead: Private Sector Giving to the Arts and Humanities**, a recent study published by the President's Committee on the Arts and Humanities with support from the Rockefeller Foundation and the Texaco Foundation, finds that individual and corporate contributions to the arts are stagnant. Moreover, the average size of individual donations, which account for 77% of all giving (adjusted down to exclude gifts to religious organizations) is down 11% in real dollars since 1989. All the foundations which were surveyed for this study, save one, reported that they will not be able to increase their funding for the arts and humanities.

The question of "making up for reduced federal funds" is not just one of dollar amounts because federal dollars are unique in their purpose and distribution. Corporate giving to the arts is increasingly driven by marketing and human resources objectives and, in general, is determined by location and benefit to employees. Most foundation dollars are given locally. Federal dollars are awarded to reward excellence and to provide access. This giving is driven only by the mission to deliver excellent art to as many American citizens as possible in as broad an area as possible. No other funder will make up for the loss of this service.

FUNDING FOR ORCHESTRAS

QUESTION: I am worried, as I am sure you are, about the state of orchestras in our country. Because of the drastic cuts imposed on the NEA, funding for the music program is half of what it was in FY 95. You say in your testimony that forty orchestras who have received Endowment grants in the past will not obtain federal funding this year. Do you know if these orchestras have made up this money in private contributions? Will some of these orchestras be forced to raise ticket prices or cancel their seasons?

ANSWER: With regard to the nearly forty orchestras that have lost funding, the general result is that they have lost the most important fund raising incentive that exists in this country: the federal dollar. As one well-known orchestra manager has noted, fund raising appeals to the general concert-going public from the stage and using the incentive of a dollar for dollar match netted a tenfold increase over other incentives such as state and foundation grants. All orchestras that remained in the Endowment's funding pool suffered approximately a 50% cut. Before the cut, the Endowment supported one to three percent of American symphony orchestras' operating budgets; the share is now .5% to 1.5%.

Because the Endowment's grants make up such a small percentage of orchestras' total budgets, the loss of funding tends to affect the organizations in subtle but pervasive ways. Conversations with several noted development directors in the orchestra field lead one to understand that the damage from severe cuts from the Endowment leads to a measurable downgrading of the financial and artistic health of orchestras large and small. Fewer services, drops in educational programs, and cuts in weeks of employment are but a few of the effects that are felt. The loss of financial leverage is always mirrored by a loss of artistic and managerial strength.

CANTON SYMPHONY ORCHESTRA

QUESTION: I am curious about the cuts to the Canton Symphony Orchestra. How many children in the Canton area will not be able to participate in the Orchestra's outreach programs because of the cuts to the NEA?

ANSWER: In past years, the Canton (Ohio) Symphony Orchestra had successfully competed for grants in the orchestra category of our Music Program, and received grants averaging approximately $22,000 annually. Budget cuts imposed in FY 96 forced cuts in the orchestra category of more than 50 percent, and a consequent reduction in the Canton grant to $10,000. Forty excellent orchestras that had received grants in past years received no funding at all.

Canton Symphony uses its Endowment grant to support an outreach program in the local schools offering subsidized ensemble performances, master classes, and other services to students in the area. With the grant effectively reduced by half, the Canton Symphony will offer the ensemble program to fewer schools, thus denying to many students the opportunity to experience and interact with professional musicians. The evidence clearly shows that when school budgets are cut, classes in the arts and music are the first to go. For example, in Stark County during the 1992-1993 season, 19,975 elementary students attended the special ensemble performances supported by the orchestra and the schools. Responding to other school system priorities in 1994-1995, the program was reduced and fewer schools could afford the subsidized ensembles. Only 12,400 students were served. Now that the orchestra's funding support for the outreach program has been cut by 38 percent in 1996, it stands to reason that only a fraction of the 45,400 students in Stark County (K-8), will be able to share the rich experience of listening to and interacting with professional musicians.

The cuts will affect the orchestra in other adverse ways as well. As performing opportunities for its musicians decrease, it will certainly become more difficult for the company to attract high quality professionals.

GRANTS TO INDIVIDUALS

QUESTION: The FY 96 conference prohibits the NEA from making grants to most individuals. Has the Endowment been enforcing this ban, in spite of the President's veto of the Interior conference report?

ANSWER: While the President vetoed the Interior Conference Report, we have reluctantly followed the language passed by the House and Senate. We strongly support lifting this ban on funding individual artists.

NUMBER OF GRANTS IN FISCAL YEAR 1996

QUESTION: How many grants do you expect to make in FY 96? How does this compare with FY 95?

ANSWER: The Arts Endowment expects to make under 2,000 grants in FY 96. This compares with nearly 4,000 grants in FY 95.

SUCCESS RATES FOR APPLICATIONS

QUESTION: What percentage of applicants actually receive grants? How does that ratio compare with prior years?

ANSWER: The percentage of applicants actually receiving grants has, in the past, varied greatly: from fewer than 5 percent in the individual fellowship categories to about 50-60 percent in some of the organizational categories such as theater and orchestra. We do not have such information available for FY 96. Since grants to individuals have been virtually eliminated, those ratios (e.g., 95 or more percent rejected) will no longer pertain except, for example, Literature Fellowships. The ratio of "success" for organizational applicants will probably be lower in FY 96 than in FY 95, although what is even more clear is that even those groups that do receive funds will, in the main, receive considerably less than in the past.

IMPACT OF POSSIBLE FURTHER AGENCY FUNDING REDUCTIONS

QUESTION: What will the impact be if your appropriation for FY 97 turns out to be less than your FY 96 budget of $99.5 million?

ANSWER: Should the Arts Endowment's budget for FY 97 be even lower than that for FY 96, it seems clear that yet another reorganization, or reassessment of how we do business, will be the result. Another RIF, as well, could result. The Arts Endowment's effectiveness, and ability to serve the field and the American people would be severely compromised.

AGENCY REDUCTION-IN-FORCE ACTIONS

QUESTION: How many RIFs have you had? What percentage is this of your total workforce?

ANSWER: The Arts Endowment RIFed 89 employees, **down to 149 FTE**, a cut of 45 percent below its authorized ceiling of 273 FTE, and a cut of 37 percent below its actual on-board strength of 238 at the beginning of FY 96.

EFFECT OF REDUCED FUNDING LEVEL ON AGENCY FUNCTIONS

QUESTION: How has this impacted your ability to carry out the mission of NEA?

ANSWER: The impact on the agency's ability to carry out its mission has been profound. As noted, 17 Programs are down to three areas of support: Partnership Agreements, Leadership Initiatives, and Category Grants. The agency physically occupies some 38 percent less space, will have 50 percent fewer panels, is struggling to keep up with its workload, cannot permit staff travel to inform the field more fully of our new structure and guidelines, and is continually challenged to return phone calls and respond to correspondence in a timely manner. The continued functioning of the agency with spirit, dedication, and efficiency is a great tribute to its skilled and committed staff.

RESTRUCTURING OF AGENCY

QUESTION: I know that the agency has been forced to restructure and downsize because of your budget cuts. What exactly has this restructuring entailed? What do artists and arts organizations think about the restructuring?

ANSWER: The Arts Endowment historically has been organized around 17 programs that represented the various artistic disciplines (e.g. dance, theater, music, etc.) and other areas with which the agency has developed partnerships (e.g. state and local arts agencies). Under the overall direction of the agency's Chairman, two Deputy Chairmen oversaw the grantmaking and leadership activities in those areas. Most of the remainder of the Endowment staff fell in administrative areas (e.g. finance, grants, contracts, etc.), overseen by the Deputy Chairman for Management.

The agency was restructured in January 1996. Replacing the 17 former programs are four thematic divisions through which grants will be awarded: Heritage & Preservation; Education & Access; Creation & Presentation; and Planning and Stabilization. Specific targeted leadership initiatives will be housed within each division. In addition, the Endowment will continue its partnerships with state arts agencies that -- with regional arts organizations and local arts agencies -- provide the infrastructure for public support of the arts nationwide. These areas are overseen by the Deputy Chairman for Grants & Partnership. The Deputy Chairman for Management & Budget oversees the administrative, budget, guidelines, and panel areas. Overall direction still is provided by the Chairman.

The number of staff at the agency has been reduced by nearly 40% to a current level of approximately 150. The new structure takes into account this severely reduced staffing level. This reduction was accomplished through job freezes, attrition, buy outs of eleven staff members who were eligible for retirement, and through a reduction in force that terminated 89 employees in December 1995.

In general, the arts community has been very supportive of the Endowment's efforts to remain responsive to the needs of artists, arts organizations, and the public despite the drastic reduction in funding sustained in the current fiscal year. Negative response for the most part has been directed not at the reorganization itself, but at the funding situation that prompted it. As noted in an earlier question, several members of the Endowment staff have conducted public sessions to solicit advice about the reorganization and to advise constituents about new guidelines and procedures. Those staff members consistently report that participants in the sessions generally are positive about the reorganization, are grateful that support will continue in the current year, but are extremely fearful about the prospect of reduced funding and increased competition for federal support.

SUBGRANTING AND LOCAL ARTS AGENCIES

QUESTION: Would the Endowment support expanding the current subgranting exemption in order to allow subgranting to be done by those local arts agencies that are arts councils, commissions or nonprofit organizations designated to operate on behalf of their local governments or are themselves operating units of city or county governments?

ANSWER: The Endowment would support expanding the current subgranting exemption to include the types of local arts agencies described in the question. National statistics show that 61% of local arts agencies in the country regrant funds. It is the Endowment's experience that enabling those agencies to regrant federal funds extends our reach into communities and makes a significant difference in the level of arts delivery.

QUESTION: What has been the impact on the federal government's ability to leverage local public dollars as a result of this year's subgranting restriction which excludes local arts agencies?

ANSWER: The Endowment does not have statistics that address the negative effects of the subgranting restriction on local arts agencies. We can, however, provide documentation of the success of Endowment-supported subgranting programs in local arts agencies over the past several years.

The Endowment's Local Arts Agencies Program was created in 1984 to leverage new public support for the arts at the local level. In the Program's first year, $1.9 million in federal funds leveraged $14.5 million from other sources. The catalytic effect of federal funding was felt in communities as small as Abilene, TX, and Hamilton, OH and in cities as large as Los Angeles, CA, and Miami, FL.

In addition to grants awarded through the Local Arts Agencies Program, eight out of nine Challenge Grants awarded to local arts agencies in the past ten years supported subgranting programs.

LOCAL ARTS AGENCIES AND UNDERSERVED SET-ASIDE

QUESTION: Would the Endowment support expanding the eligibility of directly accessing the federal formula-based Underserved category for rural and inner city areas to include local arts agencies?

ANSWER: The administrative capabilities of the Endowment have been stretched to a great degree by the recent reduction of 40% of the agency's staff. Those remaining have had to take on increased responsibilities in many areas. There is one specialist, for example, to handle all matters relating to expansion arts organizations and local arts agencies. It would be very difficult for the Endowment to handle applications for Underserved funds were they submitted directly by local arts agencies. It is the Endowment's experience that the current system of granting Underserved funds to state arts agencies who serve locals has been successful and should be continued.

WEDNESDAY, MARCH 6, 1996.

NATIONAL ENDOWMENT FOR THE HUMANITIES

WITNESSES

SHELDON HACKNEY, CHAIRMAN, NATIONAL ENDOWMENT FOR THE HUMANITIES

STEPHEN CHERRINGTON, DIRECTOR, OFFICE OF PLANNING AND BUDGET

DONALD GIBSON, SENIOR HUMANITIES ADVISOR

ANN YOUNG ORR, DIRECTOR OF CONGRESSIONAL LIAISON

GEORGE FARR, DIRECTOR, DIVISION OF PRESERVATION AND ACCESS

JAMES HERBERT, DIRECTOR, DIVISION OF RESEARCH AND EDUCATION PROGRAMS

OPENING REMARKS

Mr. REGULA [presiding]. I call the meeting of the Interior Subcommittee. We have today Mr. Sheldon Hackney, Chairman, National Endowment for the Humanities and——

Mr. CHERRINGTON. Steve Cherrington, Director, Office of Planning and Budget.

Mr. REGULA [continuing]. Steve Cherrington. Thank you for coming. We will try to keep it fairly brief. I have a tough schedule and visitors all over the place. So, if you would, Mr. Hackney, summarize your statement. It will obviously be made a part of the record. And we'll go from there.

Mr. HACKNEY. Thank you very much, Mr. Chairman. I will try to be relatively brief. I appreciate the opportunity to appear before you today and speak on behalf of the National Endowment for the Humanities.

Mr. Chairman, I know that the Fiscal Year 1996 budget choices that you had to make were not easy, and I recognize as well that the 36 percent budget cut from the Fiscal Year 1995 conference level imposed on us was a signal that we had not only to make do with less, but also that we had to be very entrepreneurial and to find new ways to pursue our goals. We are doing just that. But I must also caution that this reduction has not been purchased without an important cost to the Nation. And I wanted to say a word or two this morning about both our transformation of the Endowment and also the cultural losses that will inevitably result from our lower level of funding.

This past year was and extraordinary time in the Endowment's history. As early as last summer, faced with the high probability of receiving a significant funding reduction for Fiscal Year 1996, we began preparing for an orderly transition to a much smaller and restructured NEH. This exercise continues a practice that we have been following for the past two years of streamlining whenever possible in our programming and in our core administrative processes.

Our guiding tenant during all of this was to try to keep alive to the greatest extent possible the Endowment's historic mission of advancing education and research and preservation and public programming in the humanities throughout the Nation.

Before I go further, let me point out that through all of this, all the budget cut backs and the organizational restructuring, the staff of the NEH has continued to do the agency's business at what I think is a superior level of dedication and real professionalism—the sort of professionalism that it has shown even in the best of times, and these are not the best of times for the staff. So, I am quite proud to represent this agency to the public as it continues, in spite of everything, to honor the commitments that we have made to scholars, teachers, and citizens throughout the country.

Now, having gone through our painful reorganization and layoffs, we have emerged, eager, I think, for the future, but much smaller. We have shrunk from 276 positions to 170 positions as part of our effort to make the NEH as streamlined and as efficient as possible. We have consolidated from six divisions down to three. We have had to make some very tough priority choices about programs as we went from 31 programs to 9. Let me give you a couple of examples of what these reductions mean in real terms, in programmatic terms.

NEH SEMINARS AND INSTITUTES

One of the programs that we have had to reduce is also one of our flagship programs. I'm thinking here of the summer seminars and institutes for college and high school teachers. In the summer of 1995, this program supported seminars and institutes that were attended by 2,600 high school and college teachers around the country——

Mr. REGULA. What was the topic of the seminars?

Mr. HACKNEY. These were on all sorts of subjects: Shakespeare, literature, history. Here is one big brochure, in fact, that lists the whole setup. Quite varied, it covers a lot of ground.

Now, those 2,600 teachers who attended a seminar——

Mr. REGULA. How were they selected?

Mr. HACKNEY. We give a grant to the leader of the seminar, the scholar who is doing it. The scholar then gets applications from teachers and selects those who will attend the seminars. So, it's a competitive process, and I think a good one. We monitor it, but that is basically the way it works.

Those experiences are really quite transforming for the teachers, and they go back and teach as many as 425,000 students in the first year after having attended one of those seminars. That's close to a half of a million students across the country.

Mr. REGULA. Is the cost of the teacher coming from, say, a university or college, paid by the college or university?

Mr. HACKNEY. Yes.

Mr. REGULA. So, the involvement of the NEH would be to give the grant for the organization of the seminar.

Mr. HACKNEY. No, we provide the money for the teachers, the participants to attend.

Mr. REGULA. Oh, so, total cost of the seminar, including housing, and transportation for the participants is funded by NEH?

Mr. HACKNEY. Right, in a stipend.

Mr. REGULA. As the university or college that's going to benefit from that teacher's knowledge share in the cost?

Mr. HACKNEY. These are chiefly school teachers, so their districts are squeezed for funding

Mr. REGULA. Oh, you're talking about K through 12?

Mr. HACKNEY. K through 12 as well as college teachers, but the bulk of participants in our institutes and seminars are school teachers.

Mr. REGULA. Okay.

Mr. HACKNEY. The point that I was trying to make is that the real beneficiaries are not the teachers themselves, but the students that they teach. And they will touch about 425,000 in the first year after those summer experiences and that ripple effect, of course, continues beyond the first year to subsequent years as well. So, we're trying to protect this program. I think it is not only one of our flagship programs, but also something that we can be very proud of.

Mr. REGULA. So, in downsizing this had a high priority.

Mr. HACKNEY. This had a very high priority. And it still will be cut about 30 percent even with that. Now that means that we will be supporting only about 1,400 teachers in 1997, and those teachers will reach only 220,000 students in the first year rather than 425,000. So the real losers of this cutback are the 200,000 who won't be taught by a teacher who has had his or her professional and intellectual life renewed by that summer seminar experience.

PRESERVING OUR CULTURAL HERITAGE

A second example is in our reference works and other research tools that are critical to scholars and to students. As this committee is well aware, the NEH has been the acknowledged leader in the national effort to preserve historical materials that are an important part of our cultural heritage. Next year, 20,000 fragile books, and 230,000 disintegrating pages of historically important U.S. newspapers will not be microfilmed and preserved as they would have been had we stayed at the 1995 budget level.

Mr. REGULA. Are these done by agencies or institutions. You give them a grant to do it, but they have the materials?

Mr. HACKNEY. Exactly, they have the materials, those materials——

Mr. REGULA. I assume that you're saying that they don't have the funding on their own to do it?

Mr. HACKNEY. That's right. This falls in the area of that sort of unglamorous but necessary work that private donors are not likely to find attractive but is very critical to the long term preservation of our cultural heritage.

In addition to those books and newspapers that won't be microfilmed, there are more than 130,000 objects of archeological, ethnographic, and historical importance that will not be preserved or conserved because of the lower levels of funding that we have now.

A third example would be the challenge grant program, which leverages funding from the private sector. Here the budget cuts have also limited our ability to stimulate private donations. In fact, we will be unable to leverage as much as $20 million in new or increased gifts to humanities organizations and institutions around the country because we have fewer challenge grant dollars.

I believe you will be interested to know, Mr. Chairman, that one of our challenge grants was to Kenyon College, and it is making a real impact on the life of the farming communities in that part of Ohio. The NEH challenge grant was matched and made possible an endowed professorship at Kenyon College. This is a rotating professorship. It rotates every three years. The first incumbent is Professor Howard Sacks who was selected because his project was so attractive, and it is a project on the family farm and community life. The project has given students at Kenyon an understanding of the history of family farms through field work and oral histories with farming families. It has also produced a radio series on the area's family farms and the issues that are important in the lives of farmers. I have a letter here and a brochure from one of the participants, one of the farm families. It may be just a tractor road down from your farm in Navarre. But, Art and Joan Cassell write: "The Kenyon Family Farm Project has been valuable for fostering a real sense of community between the Kenyon students and the Mt. Vernon agricultural sector. Our family received many favorable comments about the radio program from friends and neighbors in Knox County. Perhaps just as important, we learned more about our fellow farmers in Knox County as each operation is unlike another." So, you see, one never knows where the humanities may have an impact.

We really don't have the cumulative data on the impact of all the Fiscal Year 1996 cuts. So much of what we fund has an impact that goes beyond the short term to over a much longer period of time due to the "ripple effect" of our grants. What begins as a lonely piece of scholarship, perhaps read only by a few highly specialized researchers and scholars, is occasionally used by a film maker and suddenly 250 million Americans have a much richer understanding of our history because of that. Or, at the same time, text book writers will pick up that bit of scholarship and incorporate it into a textbook that is used by schools nationwide. So, you see, we will not know the full effect, the full use of the work that we are not able to fund for the next 20 to 40 years as the "ripple effect" will not be there. Yet, without your support, the constant, sort of cumulative effort to understand our past will be impoverished.

PUBLIC IDENTITY OF NEH

As we were going through the furloughs this winter, I looked sometimes with great envy at the National Park Service because when the Winnebagos start lining up at the entrance to the national parks and can't get in, the public notices and it reacts. So, in a perverse way, I envy that because the pain and suffering there is visible.

Mr. REGULA. You've got to figure out a program for Winnebagos. [Laughter.]

Mr. HACKNEY. We have one in truck stops all over America. [Laughter.]

Mr. REGULA. Okay.

Mr. HACKNEY. We will be doing discussion groups. [Laughter.]

Mr. REGULA. I didn't think that you'd have to encourage that. They are pretty good at it without any, I'd say.

Mr. HACKNEY. We don't want to have the focus on "Baywatch" but on something more substantive.

Unfortunately, we don't house collections like the Smithsonian. We don't operate a network of television stations like PBS or provide programming for them. We don't have collections like a central library like the Library of Congress. Our funding really has a sort of different and more indirect identity. People know us, if they know us at all, as the Metropolitan Museum of Art, or WETA, or the Chippewa Valley Museum in Wisconsin, or Kenyon College in Ohio. They don't know us as NEH. They know us as the programs that our grantees produce for them. So, when the government shuts down, there is no dramatic demonstration of the loss of NEH funds like there was at the National Gallery when people do not have access to the Vermeer exhibit. But the loss is the same.

EDITIONS PROJECTS

The closest that I think that we come, perhaps, to the "We'll have to close the Washington Monument" syndrome are the collected editions of the papers of the Nation's Presidents and other historical and literary figures that we support every year in a continuing way. Currently, we have a number of projects going, but included therein would be the George Washington papers, the legal papers of Abraham Lincoln, the papers of the first Federal Congress.

Mr. REGULA. Where do you collect these? Where do you put them?

Mr. HACKNEY. These are collections that are in libraries and in archives all over——

Mr. REGULA. So you assist them?

Mr. HACKNEY. We assist them. This is like the book preservation and newspaper preservation.

Mr. REGULA. So, you might give them a grant to acquire these for their own collection?

Mr. HACKNEY. They already have them. We give them a grant to edit them and publish them and make them much more available.

Mr. REGULA. All right.

Mr. HACKNEY. These are such things as the Washington papers, the Eisenhower papers, the legal papers of Abraham Lincoln, the Frederick Douglass correspondence, the Jackson papers, the Jefferson papers and on and on.

Unfortunately all of these are not going to be able to continue at the current levels of funding. We expect that as much as 30 percent of the presidential papers and editions projects that we are presently supporting will not receive continued funding. And I think that that is going to be a tremendous loss for the country.

PUBLIC PROGRAMS

In our public programs area, which is possibly the only high profile area that we have, we will be giving fewer and smaller grants for media projects and for museum exhibits. It means that we may not discover, therefore, the next Ken Burns or the next Henry

Hampton who have done such great work for television. I think also about the "Age of Rubens" exhibit that was at the Toledo Museum of Art in Ohio, which attracted more than a quarter of a million visitors there, the largest attendance of any show at that museum in its 93-year history. This was more people than live in the city of Toledo, obviously, and it was drawing people from all over that region. It was a tremendous boost to the economy of that city and of that region, generating more than $22 million in revenues as well as, of course, enhancing the intellectual, cultural, and spiritual life, if you will, of the people who went there to see the show. We'll be doing fewer of those.

SUMERIAN DICTIONARY

There is another part of me, Mr. Chairman, however, this is the academic in me, the historian, if you will, that says, the heart of the NEH is not these high-profile things, the Civil War series, the Rubens exhibition. It's the individual works of scholars who receive very modest fellowships and other research grants from us each year to do research and write books and articles that expand our knowledge and understanding of the past. The project that I get most excited about is in a sense extremely esoteric, and this is the *Sumerian Dictionary* project. History begins in Sumer. Sumer existed roughly from the fifth millennium to the second millennium B.C. That's roughly 5,000 to 2,000 B.C., in southern Mesopotamia, in the area where civilization is said to have began. This is before the Babylonian Empire. And, Sumer developed the first written language.

Mr. YATES. Is this why the poet said that Sumar is a cumin and loodlies sing cuckoo? [Laughter.]

Mr. HACKNEY. No, that's much later, Mr. Yates. [Laughter.]

A group of scholars has been working away trying to and indeed accomplishing, the creation of a dictionary of the Sumerian language so that we can understand that culture better and have easier and quicker access to——

Mr. REGULA. Where are they doing this? At one of the universities?

Mr. HACKNEY. In several. The University of Pennsylvania museum is the primary site, but collections of these—this is a tablet. This is a language created with sort of wedged shaped—it's cuneiform. It's wedge-shaped symbols that were inscribed on clay tablets. This is not the real thing, this is a replica. The real thing is worth quite a lot.

Mr. YATES. The University of Pennsylvania had an album—there were many wonderful copies of primitive art. And I assume that this is one of them?

Mr. HACKNEY. Yes. They are very strong in archaeological artifacts from that part of the world. And this project——

Mr. YATES. Has this been translated?

Mr. HACKNEY. That has been translated, and I think that it—this particular one is about—a parent scolding a child for not working hard on homework. [Laughter.]

So, even then——

Mr. YATES. The world doesn't change much.

Mr. HACKNEY. No, the world doesn't change much, which is one of the lessons of being able to dig into one of these ancient civilizations.

This has been going on for about 20 years. It is a very laborious thing. If there is any modern analog to Brother Dominic sitting in a lonely monastery copying manuscripts, this is it. Except it is not copying, it is creating a dictionary that will give us quicker access to this language.

This is totally invisible to the general public, but it will, I think, not only enhance our knowledge and deepen our knowledge of the ancient world and of our own Western civilization, but I think that it is the example of the sort of lonely work that ripples through later work and will inform later work. Now, you may not get as excited as I do about the Sumerian Dictionary, but it does contribute to our understanding of the past in the same way that the Dead Sea Scrolls project does.

DEAD SEA SCROLLS

The Dead Sea Scrolls, you will recall, were found in caves near Qumran in the West Bank between the years of 1947 and 1956, and it has been described, I think quite accurately, as the greatest archaeological discovery of the century. It is much more important for our understanding of the past than the discovery of King Tut's tomb, for instance, in the 1920s. The Dead Sea Scrolls date roughly from 226 B.C. to 68 B.C., the Second Temple Period there. They include many of the earliest extensive versions of the Old Testament text that we have now. Our bible is based on text that date from the ninth century A.D. These were, therefore, extraordinarily important in expanding our knowledge and confirming our versions of these Old Testament texts. There were discoveries of some text that we had not known before. It really is quite extraordinary.

In 1980, Eugene Ulrich, who is a professor of Hebrew scripture at the University of Notre Dame, was asked to complete the work of the original editors of the scrolls and bring part of the findings to publication. The Endowment has supported Professor Ulrich's work with five grants since 1986, and two out of the projected five volumes have already been published.

Let me show you facsimiles of the fragments of the Dead Sea Scrolls that they are working with.

[Showed book fragments.]

And also one of the finished projects. This is what the book will look like. There are few facsimiles in the book; it is mainly annotations and transcriptions and translations of the text there. It's extraordinarily——

Mr. REGULA. This is done with NEH grants?

Mr. HACKNEY. It's done with an NEH grant to Notre Dame University for the work of Professor Ulrich.

Mr. REGULA. Who printed it? Who did the book itself and the printing?

Mr. HACKNEY. Actually——

Mr. YATES. It says Oxford and the Clarendon Press.

Mr. REGULA. Yes, I see that.

Mr. HACKNEY. Well, the significance of this work is, of course, monumental to our understanding of our religious and historic roots. It's just another example, for me, of the unglamorous but critical work that NEH supports.

Now, I have gone on at some length about our losses this year, but I do believe that it is important for the committee to have a full understanding of what is at stake in the Federal funding equation. And I am extremely pleased that the President in his budget has recommended for Fiscal Year 1997 a budget for NEH of $136 million. I think that this request demonstrates the President's understanding of the needs in the humanities that I have outlined here and an appreciation of how the humanities contribute to the spirit and life of the Nation. With that amount of money, we would be able to recover some of the ground that we have lost in education and in research and in the ways we reach large audiences with such things as films and museum exhibits and library exhibits and discussion groups.

In requesting a partial restoration of our funds, I am also firmly convinced that we cannot simply continue to operate as we did. So, we're doing things in a very different way at NEH. We're not only trying to make it easier for people outside the Endowment to use us, to have access to us, to understand us, but we are looking also for new ways to amplify the benefits of the grants that we do make.

NEH ENTERPRISE OFFICE

To accomplish all of this, I've created something that we are calling the Enterprise Office. This is part of the NEH's organizational structure. This is a new office. And it has the critical task of containing people who will wake up every morning and ask the question, "What can I do? What can the NEH do to get more impact out of the grants that we make? How can we find new audiences for the products that we have already helped to create? How can we extend the life of those programs beyond the first use of them? How can we amplify them in any sort of way? How can we be entrepreneurial and pursue our task in new and creative ways?"

Let me give you an example of how we might be able to do some of that using the *Library of America* series. Now, that's a series of authoritative texts, great works by American authors. About 73 volumes are in existence. They are wonderful; they are done in a subsidized way so that they are relatively cheap now. The NEH was instrumental in starting them, though we are not now contributing any more funds to their creation, that is to the publication of those texts.

Mr. YATES. Will they be able to be continued?

Mr. HACKNEY. They are raising money on their own now without our help. And they are able to continue. One of the things that they try to do, which they are not having much success in doing now, is to find sponsors—that is, funders—who will buy or pay for those books or texts and give them to school libraries and small town libraries. That's the sort of thing that NEH might be able to do with not only the various scholarly books and articles that we help to create through our funding, but also, documentary films and other things that we might be able to package and give to school libraries and small town libraries so that they are more available to the public. Right now, we don't really do that in a big way, but I think with the Enterprise Office, we will be looking for partners, people who will be willing to put up some of their own money to help extend the reach of those things that we help to create.

I am very hopeful that we will be successful in that. I can't stress enough, however, that the impact of the cuts that we have suffered is really chipping away at our cultural infrastructure in the country. I am concerned that over time that infrastructure will be significantly eroded. This is the greatest country in the world, and our civilization can only extend and reach into the future if it has some sure footing on an understanding of our past.

Nina Cobb, who is the author of this study—the Rockefeller Foundation and Texaco Foundation supported it—it's "Looking Ahead, Private Sector Giving in the Arts and Humanities." Nina Cobb makes two fundamental points here. You may not have seen that.

[Distributes brochures by Nina Cobb.]

Two fundamental points that I think are quite important. First the private sector, she concludes, cannot possibly fill the void of financial support should the Federal presence cease to exist. Second, very important also, the NEH, even at $110 million, is the single largest funder of humanities programs in the country. This makes it a bit different from other cultural activities of the Federal Government. If we cease to exist it would be a tremendous loss to the humanities community and to the country.

So, I think that NEH is very much worth the investment that you put in it. It's worth even more than you can probably afford to put in it. But, I am here to say that we are doing the best that we can with the limited funds that we have available.

Thank you, Mr. Chairman.

[The statement of Mr. Hackney follows:]

Mr. Chairman and Members of the Subcommittee:

Thank you for the opportunity to appear before this distinguished Committee once again to speak on behalf of the National Endowment for the Humanities. Mr. Chairman, I know that the FY 1996 budget choices you had to make were not easy. I recognize as well that the 36% budget cut from the FY 1995 appropriation to the FY 1996 conference level imposed on us was a signal that we had not only to make do with less, but that we had to be very entrepreneurial and find new ways to pursue our goals. We are doing just that. But I must also caution that this reduction has not been purchased without an important cost to the nation.

This past year has been an extraordinary time in Endowment history. As early as last summer, faced with the high probability of receiving a significant funding reduction for FY 1996, we began preparing for an orderly transition to a smaller and restructured NEH. Our guiding tenet during this exercise was to try to keep alive--to the greatest extent possible--the Endowment's historic mission of advancing education, research, preservation, and public programming in the humanities throughout the nation.

We finally made the transition to our new organization for our grant programs and operations. Although this action was a direct consequence of the radical reduction in our budget for FY 1996, I would like to point out that to a certain extent the reorganization continues a policy we have been following for the past two years of streamlining, whenever possible, our programming and core processes. My ultimate objective was to reorganize NEH in a way that could maintain a high level of service to the American people and to expand the ways we reach people in rural and urban areas, from school-aged children to adults. Due to the loss in federal funds, I knew that we would have to be creative about finding other ways to meet these objectives.

Before I continue, let me just point out that through all of the budget cut-backs and organizational restructuring the staff of NEH has continued to do the agency's business with the superior level of dedication and professionalism it has always shown in the best of times. It is very gratifying - and I am very proud - to represent this agency to the public as it continues, in spite of all, to honor the commitments we have made to scholars, teachers and citizens throughout the nation.

Having now gone through our painful reorganization and layoffs, we have emerged eager for the future but much smaller. We have shrunk from 276 positions to 170 positions. As part of our effort to make NEH as streamlined and efficient as possible, we have downsized from six divisions to three. And, we have had to make some very tough decisions about program priorities as we were forced to go from 31 programs to 9.

A number of the programs that we eliminated were programs that probably are not very visible to the ordinary citizen. That is one of our dilemmas that I wanted to explore with you.

Let me give you an example. One of the very good programs that we are no longer doing at all, in any form, is the Younger Scholars Program, which provided small grants of $2,000 to $2,500 to high school students and college students in the humanities, to allow them to do a bit of original research and writing on subjects in the humanities during the summer, under the supervision of a scholar. This was a program that did not affect many students--we only made about 150 awards annually. But, this was a fairly expensive program to administer and so we thought that it could not be justified on a relative basis. In making these triage decisions, one of our criteria was to ask: How many lives does a program touch? This program seemed not to enrich as many as some of our other programs.

On the other hand, if you think about 150 young people around the country who had the opportunity to spend the summer studying and writing about a subject in the humanities, the value of the program was not so much that the research that they did could be reprinted and used by other students and teachers, but that there was some symbol that, in America, dreams of the spirit and of the mind were just as important as hoop dreams. And that symbolic loss, I think, is really quite important.

We have been forced to close a number of other important grant programs that I regret losing, such as dissertation grants, study grants for high school teachers, subvention grants to scholarly presses, and a number of others. Several other grant activities--for example, support for archaeological research, undergraduate curriculum development, school and college collaboratives, humanities studies of science and technology, and translations of foreign language texts into English--had to suspend or cancel their grant competitions for the year. In addition, we were forced to adopt a strategy of bundling many of our remaining programs together so that unlike activities will now have to be competing with each other for very much reduced pots of money.

As an example of what these reductions mean in real terms, let me share with you what we have contributed to the nation through the subventions program. This program has enabled publication of: Atlas of the Lewis and Clark Expedition, ed. by Gary Moulton (University of Nebraska Press); Cities of the Mississippi, by John Reps (University of Missouri Press); The History of Cartography, by J.B. Harley and David Woodward (University of Chicago Press); A Writer's Diary, by Fyodor Dostoevsky, (Northwestern University Press); and Recollected Words of Abraham Lincoln, ed. by Don E.

Fehrenbacher and Virginia Fehrenbacher (Stanford University Press). Having had to cancel this program, I have no confidence that books of this nature, which have significant scholarly--but little financial--merit, will be published with the same level of intellectual rigor and discipline.

We do not have solid cumulative data on the impact of the FY 1996 cuts. So much of what we fund has an impact not in the short term, but over a far longer period of time due to the "ripple effect" of our grants. What begins as a lonely piece of scholarship, which may be read by only a small number of highly skilled researchers and scholars, is used by a filmmaker and suddenly 250 million Americans have a much richer understanding of our history; or at the same time this scholarship may be incorporated by textbook writers into books which are used by schools nationwide. So you see, we will not know the full effect, the full use, of the work we support for 20 to 40 years. And yet, without your support the constant, cumulative effort to understand our past will be impoverished.

Another example of the ripple effect of the projects we support is to be found in one of our flagship programs--summer seminars and institutes for college and school teachers. In the summer of 1995 this program supported seminars and institutes that were attended by more than 2,600 high school and college teachers around the country. As many as 425,000 students in America were taught by those teachers. That's close to half a million students whose lives were affected by a very modest grant program.

We're trying to protect this program, but it will also receive about a one-third cut because of the reduction in the agency's budget. This program offers teachers an experience that is absolutely transforming; especially for high school teachers, who do not otherwise get a chance to renew themselves intellectually, or to study with the leading scholars. They return to the classroom, not only with new knowledge about a subject area, but really charged up and ready to teach. With FY 1996 funds, however, we will only be able to support 1,400 teachers and reach 220,000 students - almost half as many as we reached last summer. And that means that 200,000 students are the losers.

Individual fellowships are the same way. The scholar who wins one of our fellowship grants is not the one who really benefits. Their research, published in a book or article, may then be used by other scholars, teachers, and their students. So, you can see that it is the student who really benefits.

Another area where we will feel the loss is in our reference works and other research tools that are critical to scholars and to students. The current budget situation is also significantly limiting the Endowment's ability to support projects to preserve fragile books, newspapers, documents, and artifacts held in the nation's libraries, museums, and other cultural institutions. As this Committee is well-aware, for many years NEH has been the acknowledged leader in the national effort to preserve historical materials that are an important part of our cultural heritage. Because the FY 1996 budget decrease will force us to make fewer and smaller grants, 20,000 brittle books and 230,000 disintegrating pages of historically significant newspapers will not be microfilmed. In addition, 130,000 objects of archaeological, ethnographic, and historical importance to the nation will not be preserved.

The Endowment's ability to stimulate private donations to humanities institutions and projects has also been significantly scaled back as a result of the cuts. The lower appropriation for our Challenge Grants program, for example, means that we will be unable to "leverage" as much as $20.6 million in new or increased gifts to humanities organizations and institutions across the country. To accommodate these reductions we have had to "stretch out" over longer periods of time our offers of matching funds to current challenge grant recipients.

As we were going through the furloughs this winter, I looked sometimes with envy on the situation of the National Park Service. When the Winnebagos start lining up at the entrance to a national park, and can't get in, the public notices, and people react. In a perverse way, I envied that pain and suffering, because it was visible, and NEH does not have that kind of visibility.

Though our projects touch hundreds of millions of Americans, the American people seldom make the connection that what they are viewing or reading or visiting is funded by NEH. Such is the nature of our grantmaking institution. We do not house a collection like the Smithsonian, or operate a network like PBS or exist as one central library like the Library of Congress. Our funding usually has a different public identity: people know us as the Metropolitan Museum of Art, or WETA, or the Chippewa Valley Museum in Wisconsin, or Kenyon College in Gambier, Ohio. They do not know us as NEH. When the government shuts down there is no dramatic demonstration of the loss of NEH funds like there was at the National Gallery when people did not have access to the Vermeer exhibit.

The closest, I think, that we come in the NEH to the "we'll-have-to-close-the-Washington-Monument" syndrome are the collected editions of the papers of the nation's Presidents and other papers of important historical and literary figures that we support each year. These editions provide an invaluable service to the nation. The original source materials that scholars painstakingly assemble and transcribe are often in fragile condition, composed in handwriting that is difficult to decipher, and scattered among many archives.

Currently ongoing projects include: the George Washington Papers, the Legal Papers of Abraham Lincoln, the Papers of the First Federal Congress, the Dwight Eisenhower Papers, the Frederick Douglass Correspondence and the Andrew Jackson Papers. Unfortunately, all of these are not going to be able to continue. We expect that as many as 30 percent of presidential papers and editions projects we are presently supporting will not receive continued funding. And I think that's going to be a tremendous loss of untold proportions. The greatest country in the world ought to have a documented legacy of the men and women in our history who have contributed so much to America's development. But we can no longer afford it.

In our public programs area, possibly the only high profile area we have, we will be giving fewer and smaller grants for media projects and for museum exhibitions. We will only be able to fund less than half the number of film projects and museum exhibitions we had been supporting. As a result, the American people will have far less access to stimulating programs that provide them with opportunities to explore human history and culture through the humanities.

I think about the "Age of Rubens" exhibition at the Toledo Museum of Art in Ohio, which attracted more than a quarter-of-a-million people--the largest attendance of any exhibition in the Museum's 93-year history. This was more people than live in the city; it was drawing people from the whole region, of course. And it was a tremendous boost to their economy, generating $22.8 million in revenues, as well as to the spiritual lives, if you will, of the people who went there to see that show. We will be doing fewer of those.

As I mentioned, we also will not be able to give nearly as many grants for television documentaries as we have in past years. We expect to have to turn down at least half of the best media grant proposals we receive and to offer the projects that we are able to support only about half of the funding they request. Partial funding will require these projects to seek additional money from the private sector at a time when the private sector's support for not-for-profit filmmaking is harder than ever to acquire. It is clear that the American people will have much less access to high quality educational television and radio programming in the humanities as a result of the FY 1996 funding cuts. It means that we may not discover, perhaps, the next Ken Burns--who brought us such documentaries as "The Civil War" and "Baseball"--or the next Henry Hampton--who brought us the "The Great Depression"--because they got their start with NEH funds. And that's going to be a tremendous loss.

The reduction in our budget has also severely restricted our ability to support our nation's libraries. As a consequence, in the coming year America's public libraries will offer significantly fewer stimulating, educational reading and discussion programs like the "Poets in Person" radio series--on airwaves throughout the nation--or the traveling exhibition: "The Many Realms of King Arthur" which during its 12-week stay at the Houston Public Library attracted 232,000 people, enabling the library to raise $50,000 in ancillary funds.

The state humanities councils have been cut by 5.4% in the FY 1996 budget. On a relative basis, this cut is far less than the fate of our other programs. However, this budget reduction has come at a cost to the state councils. Already operating on small budgets, they have been forced to cut staff and cancel some of their grant programs. It is central to the mission of the Endowment that we have a strong presence in every state, and I am concerned that the cuts have weakened their ability to meet state needs.

But there is another part of me, and this is the academic in me, the historian, if you will, that says, the heart of the NEH is not necessarily the Civil War series or other public humanities projects, it is the individual work of scholars who receive fellowships and other research grants from us each year to research and write books and articles that expand our knowledge and understanding of the past. This scholarship is the fundamental building block of everything else NEH supports, because all of our projects, whether films or library programs or museum exhibitions, draw upon scholarship in one form or another. NEH is, in fact, the largest single source of support for humanities research and scholarship in the United States. Scholarly books supported by NEH that have garnered a great deal of recent public attention and praise include Professor David Donald's current bestselling study, Lincoln, and critically acclaimed biographies by other scholars on Harriet Beecher Stowe (which won the 1995 Pulitzer Prize for Biography), Ralph Waldo Emerson, Robert and Elizabeth Barrett Browning, and Walt Whitman. We've tried to protect these programs as much as possible from the sting of the FY 1996 budget cut because such works are the cornerstones of the humanities and--since they will be consulted by future generations of scholars, students, and other readers of quality works in the humanities--they provide lasting benefits to the nation.

In fact, one of the projects I get most excited about is the Dead Sea Scrolls edition project. Described as one of the greatest archaeological discoveries of the century, the Dead Sea Scrolls include the earliest extant versions of many Old Testament texts and a wealth of other religious writings, many of them previously unknown, which are important for understanding the historical context of early Judaism and Christianity.

In 1980, Eugene Ulrich, Professor of Hebrew Scriptures at the University of Notre Dame, was asked to complete the work of the original editors of the scrolls and bring it to publication. The

Endowment has supported Professor Ulrich's work with five grants since 1986, and two volumes out of five have already been published. The most recently published volume was dedicated to the National Endowment for the Humanities, indicating that without the NEH, these materials would not have been brought into the public domain. The significance of this work is monumental to our understanding of our religious and historic roots. It is but another example of the unglamorous, yet critical work that NEH supports.

Mr. Chairman, I know that I have gone on at length about the extent of our losses this year. But I do believe it is important for this Committee to have a full understanding of what is at stake in the federal funding equation. I must also add that while I am worried about the serious losses that we have suffered, I am still excited about the good things that we can do, at even the current level of funding. It is clear that we can not simply continue to operate the way we did so we are doing things in a very different way.

We are not only trying to make it easier for the people outside the Endowment to use us, to get access to us, but we are also looking for new ways to amplify the benefits of the grants that we can make. This is what we call the "echo effect".

This realization has led me to launch an Enterprise office as part of the Endowment's new structure. As I see it, enterprise is an expression of our commitment to identifying and implementing new ways of doing business. The Enterprise Office has a critical task; and that task is to wake up every morning and to ask the question: how can we find new partners for the things we are doing? How can we amplify the effect, extend the benefits to a wider circle of people, or to a different group of people, out into the future? How can we generate resources, or revenues, if you will, from the products that NEH has helped to create so that these monies can go to support future projects? There are a lot of ways that we can operate entrepreneurially, and we will pursue that quite aggressively.

A small working group within the agency is now hard at work helping me to cull through the many ideas and suggestions we have received thus far. And, later this week, a group of people from around the country will convene at the Endowment to offer their thoughts about how we might proceed.

Let me give you an example of how we should be "enterprising". Over the last thirty years, NEH has supported an impressive collection of films, presidential papers, editions and exhibitions. NEH's preservation efforts have saved millions of books, newspapers, and historic materials. While NEH funding is devoted to the creation of the product, little money exists for dissemination. Unfortunately, whole audiences are precluded from having access to NEH products because of their cost. This is an ideal area where we could be enterprising about partnering with the private sector. For example, the Library of America series should be in every school library across the country. This is not the case, however, because the cost of the series - available only in a hardbound edition - is prohibitive. NEH's considerable investment in the creation of books and films should have maximum reach and utility. Our products should have a powerful "echo" far beyond their initial audiences.

I am hopeful that we will be successful in our endeavors. I cannot stress enough, however, that the impact of the cuts we have suffered is chipping away at our nation's cultural infrastructure. I am concerned that over time that infrastructure will be greatly eroded. America is the greatest country in the world. Our great civilization can only extend its reach into the future if it has sure footing upon the knowledge of its past.

Nina Cobb, author of the Rockefeller Foundation/Texaco Foundation report recently cited two significant findings: Looking Ahead, Private Sector Giving in the Arts and Humanities. First, the private sector cannot fill the void of financial support for the humanities should the federal presence cease to exist. Secondly, the NEH is the single largest source of support for the humanities nationwide. Next in size and scope to NEH stands the Mellon Foundation, with $30 million annually. In short, unlike many other agencies, the federal investment in the humanities by far outweighs any other source of financial support for these activities. This fact dramatizes the critical nature of the federal role. It is very much worth the nation's investment to keep that federal effort going at as high a level as possible.

Mr. YATES. May we have additional copies of these?

Mr. HACKNEY. Yes, we'll get them to you.

STATUS OF REAUTHORIZATION

Mr. REGULA. Well, I have a number of questions for the record that I will submit to you.

Number one, of course, is what's the status of your reauthorization, because without that, we are subject to a point of order on the floor on anything that we do.

Mr. HACKNEY. A reauthorization bill has passed the House Committee.

Mr. REGULA. The House or the committee?

Mr. HACKNEY. The committee. And one has come out of the Senate committee, but has not gone to the floor of the Senate.

Mr. REGULA. So, at this point neither body has acted on the reauthorization?

Mr. HACKNEY. That's right.

Mr. REGULA. And in the absence of that, of course, we could have a problem on anything that we do.

Mr. HACKNEY. I understand that. I wish that it were different.

Mr. YATES. Will the chairman yield?

Mr. REGULA. Yes, certainly.

Mr. YATES. Of course they haven't been authorized for five years or six years. We've gone through the Rules Committee and——

Mr. REGULA. Yes, but you had a different Rules Committee than we do now.

Mr. YATES. Well, yes, and a different chairman, too.

Mr. SKEEN. And a different world, too.

Mr. YATES. What did he say?

Mr. SKEEN. And a different world, too. [Laughter.]

Mr. YATES. That's true, too.

Mr. REGULA. Well, in any event, it's an important issue.

Mr. YATES. It's not that I meant to derogate the chairman. Certainly the chairman that we have now is as good as, or better than the chairman that we had at that time. The only point I was making was that I think that with determination our committee might be able to persuade the Rules Committee to go forward with this very important authorization issue.

Mr. REGULA. Well, it's regrettable that when you had control that you didn't do the authorization.

Mr. YATES. I didn't have control or I would have done the authorization.

Mr. REGULA. Well, your party did.

Mr. YATES. Well, the party's over [Laughter.]

Mr. REGULA. That's an understatement. [Laughter.]

BLOCK GRANTS

How many States have State Humanities Councils?

Mr. HACKNEY. All 50 States and 6 special jurisdictions.

Mr. REGULA. What if we were to give block grants to the States and let them do these things?

Mr. HACKNEY. I think that that would be a huge mistake for two simple reasons. One, I think if you ask the State humanities councils now they would say that they want a continued strong Federal presence. They depend on that strong Federal presence. There is a complimentarity between the work that we do and the work that the State councils do.

Mr. REGULA. Do you give any grants to the States from the funds that you have?

Mr. HACKNEY. Yes, we do. We have made them eligible in our regular grant programs. But they get funds that flow by formula through us to them. One of the things that I have done as chairman is also to make the state councils eligible to compete for grants in our regular program areas so that if they produce a project application that is better than applications we receive from other applicants, we give them the money.

Mr. REGULA. But you wouldn't want to trust them with a block grant.

Mr. HACKNEY. It's not a matter of trust. That brings me to the second point I wanted to make and that is that they can't do some of the things that we do. There is a Federal role. No State would have enough money, for example, to fund the *Civil War* or the *Baseball* or the FDR film series.

NEH INCOME RECOVERY POLICY

Mr. REGULA. Speaking of that, do you get repayment on the sale of the Civil War Series, for example?

Mr. HACKNEY. Yes, we recovered all of our investment in the *Civil War* and put it into *Baseball*. We're recovering our investment in *Baseball*, and I hope that we'll be able to put it into some other project down the road.

Mr. REGULA. You would anticipate 100 percent recovery on *Baseball*? Obviously you have on the *Civil War* already.

Mr. HACKNEY. We have on the *Civil War* series. I think in time, yes, we'll recover on *Baseball*, but we're not there yet. But let me say also that Ken Burns is the only film maker supported by NEH who has generated positive revenue, so even though we have that recovery clause in all of our media grants now, it's only the Ken Burns stuff that earns a return.

Mr. YATES. Mr. Chairman, may I follow on that question, please?

Mr. REGULA. Yes.

Mr. YATES. Your answer indicates that you have recovered your full investment for the *Civil War*, but the *Civil War* keeps on going in royalties, doesn't it? Do you share in the additional royalties or were you chopped when you met the money that you invested?

Mr. HACKNEY. We recover only up to our investment.

Mr. YATES. Under what kind of arrangement?

Mr. HACKNEY. This is in our grant award letters.

Mr. YATES. The legislation says that you can recover only the investment? In other words, you can't share in the royalties beyond what your original investment is?

Mr. HACKNEY. That's right. In the pending authorization bill in the Senate, we would recover beyond our investment, which I think would be a wise thing.

Mr. YATES. I think so.

THE "NATIONAL CONVERSATION" INITIATIVE

Mr. REGULA. What's the status of this National Conversation initiative that you started which you apparently are going to extend to the truckstops.

Mr. HACKNEY. Yes, we're going to be in the truckstops, that's one of our objectives if we can get there.

We're about to go into a last cycle of grant awards. We've had four grant cycles; that is four National Council on the Humanities meetings in which we have given grants to projects in the "National Conversation" initiative. The meeting of the council that will occur in March will consider the last of the grants in this special competition for the National Conversation about what it means to be an American and about what holds us together. We hope, though, that the Conversation will not stop. Those projects are still going forward. They have not all been completed yet, so they will be running for another 12 or 18 months. We will bring the project directors of projects we have funded together this June to learn more about their experiences in hopes of finding ways to continue the Conversation with private funds; that is, to find other means without NEH funds to continue the Conversations. It has been remarkably successful. There have been some "inside-the-beltway" criticisms of it from journals and journalists, but generally the press coverage has been extraordinarily good.

Mr. REGULA. Do you invite the press when you have a conversation program?

Mr. HACKNEY. They are open and are covered by the local press. This is a book of press clippings from around the nation.

Mr. REGULA. Are they press clippings?

Mr. HACKNEY. Yes. Reports from the Conversation projects all over the country.

Mr. REGULA. Have you developed any summary of the ideas that have grown out of these Conversations?

Mr. HACKNEY. Not yet. I have myself been getting a sense of what Americans think and feel about this subject of what holds us together. It is an enormously interesting topic right now. Even this morning on the op-ed page of the *Washington Post*, there is an article by Robert J. Samuelson based mainly on a recent book by Seymour Martin Lipset called "American Exceptionalism," in which Professor Lipset, who is one of our most distinguished political scientists, talks about what makes America different from other countries. That's the sense of exceptionalism as he is using the term. And it focuses, of course, on the American creed, about what Americans believe about themselves. That's only one of the recent books by American scholars that focuses on the meaning of being an American. And I think that it is not accidental that scholars have been looking at this subject. Jean Elshtain, *Democracy on Trial* would be another example. Michael Lind, *The Next American Nation*. A whole virtual flood of books recently.

The reason that scholars are interested in this is the same reason that the public is interested in the topic—that is, there is a sense that America is fragmenting a bit, it's coming apart a little bit. And, therefore, there is a need to focus again on what made us a great nation, on what values and commitments we share as a Nation. That's what the "National Conversation" is about.

Let me make two points about the criticism, whether it comes from inside the beltway or outside. The journalists who tend to belittle this make two mistakes. They mistake the Conversation with idle chatter. This is not just idle chatter. It is serious discussion, and it is based on texts. Generally, the conversations frequently use the founding documents of the country, that is, the Declaration of Independence, the Constitution itself, Lincoln's second inaugural, Martin Luther King's "I Have a Dream" speech, basic great documents of American history. People sit down and talk seriously about the content of those documents.

The second thing that is missed is that these groups that converse either face-to-face or on the Internet or on the radio or by teleconferencing are people who would not be talking to each other if it were not for the Conversation. Conversation is easy in America. You can go to any bar, and you can find it. You can go to any living room, and you can find it. But those are basically people talking to other people like themselves. The groups participating in the projects we are supporting are people from different segments of the community who don't have a chance to talk to people who have a different point of view about America and who then come to either respect that point of view more or to learn from it. So, it's a very different sort of thing than idle chatter, if you will.

IMPACT OF "NATIONAL CONVERSATION" INITIATIVE

Mr. REGULA. That is a very small number of people, and it's probably very beneficial to them, but what do you say to the taxpayer who is paying the bill for all of this? How does it affect his or her life?

Mr. HACKNEY. I think that it will affect the lives of the people who participate. I wish that we could reach even more people than we do.

Mr. REGULA. Yes, those who participate. But is there any——

Mr. HACKNEY. Ripple effect?

Mr. REGULA. Yes. An external impact?

Mr. HACKNEY. There will be. I intend to do a report on the Conversation.

Mr. REGULA. That summarizes the program?

Mr. HACKNEY. Summarizing what is being said, the range of opinion, what we have learned from the Conversation.

Mr. REGULA. When will that be ready?

Mr. HACKNEY. I would hope to have that done by the end of the calendar year. The Conversation—the projects themselves need to be far enough along so that I can be confident that what I am hearing and learning is what is generally being said and thought by citizens about this subject. I conducted six pilot conversations myself as part of the planning for this. I have travelled around the country talking to groups and listening to groups discuss this, so I have an increasing sense of what Americans think it means to be an American in the late 20th Century, but I think we need to know a little bit more. I envision our report as a book that would be widely distributed to a general audience so it would extend the reach of our initiative.

Mr. REGULA. Mr. Yates?

IMPACT OF FY 1996 FUNDING REDUCTION

Mr. YATES. I read through your very fine statement last night with a great deal of sadness, I must say.

Mr. HACKNEY. I wrote it in the same spirit. [Laughter.]

Mr. YATES. Well, I couldn't help thinking about the bombing of World War II. You know, you have this magnificent structure in place, and all of the sudden you're down in the bomb shelter. We're trying to survive. And I don't know whether you will. I hope you will, and I hope you will rebuild the structure.

I understand the House authorizing committee has placed a limitation on your existence. Is it three years, I think?

Mr. HACKNEY. In the House, yes.

Mr. YATES. It's two years for the arts endowment, and I think three years for the humanities endowment. So, you're getting an extra year by the House authorizing committee.

I noted several sentences on page one. You said, "This past year has been an extraordinary time in Endowment history. As early as last summer, faced with the high probability of receiving a significant funding reduction for Fiscal Year 1996, we began preparing for an orderly transition to a smaller and restructured NEH. Our guiding tenet during this exercise was to try to keep alive—to the greatest extent possible—the mission of advancing education, research, preservation of public programming in the humanities throughout the Nation."

Well, that's what you have been trying to do as a major organization. Wouldn't you still be a major organization, suppose the President's budget proposal is not adopted by the Committee, and there's a good chance that it won't be. I think you said it was $137 million?

Mr. HACKNEY. One hundred, thirty-six.

Mr. YATES. A hundred thirty six million. Suppose it's closer to the amount that was approved in the bill for 1996, which is what?

Mr. HACKNEY. One hundred and ten.

Mr. YATES. One hundred and ten million.

Mr. HACKNEY. That's the FY 1996 conference level.

Mr. YATES. That's right. Are you still able to carry on—what's the difference between what you could do with 180 million and what you are able to do with 136 or 100—I think it could probably be reduced to close to $100 million, if I sense the trend of this Congress.

Mr. HACKNEY. I would hope not. I think the major point here is that even at $110 million, which is much lower than——

Mr. YATES. Let's use the Samuel Johnson expression here. "Let's hope for a triumph of hope over experience."

Mr. HACKNEY. Exactly, yes. Even at $110 million, though we won't be able to do a lot of the things that I was talking about in the testimony. We are still the most significant funder of humanities programs in the country.

Mr. YATES. I noticed in your statement that the Mellon Foundation is the closest. They make available something like 30 million dollars in grants for the humanities?

Mr. HACKNEY. Right.

Mr. YATES. As opposed to the amount that you make available. I wondered do the Mellons make that money available for the same purposes that you have. I just wanted to identify one or two programs. For example, on page three of your statement, you say this. "Another area where we will feel the loss in our reference works and other research tools that are critical to scholars and to students." You should have added "to the country" there, I think, because you go on to say the current budget situation is also significantly limiting the Endowment's abilities to support projects to preserve fragile books.

Mr. HACKNEY. Yes.

PRESERVATION OF BOOKS AND U.S. NEWSPAPERS

Mr. YATES. Well, this is the project this committee really created some years ago to try to keep alive, the great books that are slowly being consumed. A plan for keeping them alive over a period of 20 years was created, not only between the Humanities Endowment, but also with the great college and university libraries of the country and every publishing house and everybody who is interested in books.

Now you talk about how you are trying to preserve fragile books. Will you be able to do that on the same level as previously?

Mr. HACKNEY. No. Even though that is a high priority item with us, as with the committee, it will suffer about a 23 percent decrease. It's going from $22 million to $17 million in the current year.

So that simply means that we'll be able to——

Mr. YATES. Seventeen million dollars. What happens to the number of books that you had set aside for preserving?

Mr. HACKNEY. We will be able to microfilm fewer of them. So the national plan that we're working on simply does not get fulfilled in the 20 year period that we had said. It will take longer. By the time we get there, those books may not exist.

Mr. YATES. They are out of existence.

Mr. HACKNEY. They are brittle now, and the paper——

Mr. YATES. Suppose scholars in a later time were interested in those books, they obviously couldn't find the books. Are there references to them in manuscripts or in other sources that we might use?

Mr. HACKNEY. They would know that they were——

Mr. YATES. In some instances that would be true.

Mr. HACKNEY. Yes.

Mr. YATES. I notice too that newspapers of the old days are not going to be preserved to the same extent.

Mr. HACKNEY. About 230,000 pages, as I recall, we will not be able to microfilm, but we would have been able to microfilm if our budget had not been cut.

Mr. YATES. What does this do to the record of history in this country?

Mr. HACKNEY. It just limits it. Those materials will be lost to historians, simply gone. So whatever knowledge could be gleaned from them will not be available.

Mr. YATES. Well, for example, the Civil War, there were newspapers that reported the events of the Civil War. I assume some of those are included within this.

Mr. HACKNEY. That's right, yes.

Mr. YATES. These are small town papers, weeklies, that sort of thing. Like the paper in Canton, Ohio.

Mr. HACKNEY. That paper in particular I was thinking about.

Mr. REGULA. Ohio has been featured this morning. Ohio is the mother of presidents.

Mr. YATES. The point is, Ralph, we're going to lose the record of the fact that it's been the mother of them. That's unfortunate. I don't want that to happen. I want that to continue. Documents, artifacts held in the nation's libraries, museums and other cultural institutions.

Okay. Then you have something which again is a project that I think is important. You say this on page three: "Another example of the ripple effect of the projects we support is to be found one of our flagship programs, summer seminars and institutes for college and school teachers. In the summer of 1995, this program supported seminars and institutes that were attended by more than 2,600 high school and college teachers around the country. As many as 425,000 students in America were taught by those teachers. That is close to half a million students whose lives were affected by a very modest grant program." And that would go down and down.

Mr. HACKNEY. That's right.

Mr. YATES. The money gets less and less.

Mr. HACKNEY. That's right.

Mr. YATES. Is the Mellon Foundation likely to do that?

Mr. HACKNEY. Oh no. I think not.

Mr. YATES. Are there other institutions that have——

Mr. HACKNEY. There are some other foundations that are interested in education, of course, that will be putting modest sums into that sort of summer rejuvenating experience for teachers but not on the scale that we do. They don't have the application review system that we have, which is really what sets us apart from others. We have a marvelous high quality review system that would be hard for any other foundation to put together.

"VISIBILITY" OF NEH

Mr. YATES. You had an interesting section of your statement. You said: "As we were going through the furloughs this winter, I looked sometimes with envy on the situations of the National Park Service. When the Winnebegos start lining up at the entrance to a national park and you can't get in, the public notices and the people react. In a perverse way, I envy the pain and suffering, because it was visible,

NEH does not have that kind of visibility." Then you go on to say: "Though our projects touch hundreds of millions of Americans." Hundreds of millions of Americans?

Mr. HACKNEY. I think that's right.

Mr. YATES. How do you know that? That is a lot of people.

Mr. HACKNEY. That's a lot of people. We make estimates every year of the number of participants in discussion groups, which is one of our bread and butter public programs: reading discussion groups that we fund directly or that the State councils fund.

We also do audience estimates of the documentaries that are shown on television or heard on radio. Our best guess is a couple hundred——

Mr. YATES. Well, is it a guess?

Mr. HACKNEY. No, it's not a guess. It is an estimate based on what one can project about the audience of the——

Mr. YATES. Well, you go on to say that "the American people seldom make the connection that what they are viewing or reading or visiting is funded by NEH. Such is the nature of our grant making. We do not house a collection like the Smithsonian, or operate a network like PBS or exist in one central library like the Library of Congress. Our funding usually has a different public identity. People know us as the Metropolitan Museum of Art, or WETA, or the Chippewa Valley Museum in Wisconsin, or Kenyon College in Gambier, Ohio. They don't know us as the NEH."

Now why do you make that simile there, or that comparison?

Mr. HACKNEY. That is something I would like to change, but it a fact of our lives that we're less visible. Therefore, there's less of an immediate, broad scale public uprising when our budget is cut. That was the point I was getting at.

If you think of the most watched thing that we've done, the *Civil War* series, which was seen by about 38 million people.

Mr. YATES. I'm talking too long, Mr. Chairman. I just have one or two more questions.

Then you go on to say: "The closest, I think, that we come in the NEH to the 'we'll have to close the Washington monument' syndrome are the collected editions of the papers of the nation's presidents." That includes the presidents who came from Ohio, would it not?

Mr. HACKNEY. It does. It would.

Mr. YATES. And other papers I think——

Mr. REGULA. From the 16th District, William McKinley.

Mr. YATES. We took care of his house. We'll have to take care of his goats too.

Mr. REGULA. Right. Kenyon College is in the 16th District too.

Mr. YATES. That's good. It's a great college.

Mr. REGULA. Yes, it is.

REBROADCAST OF NEH-SUPPORTED FILMS

Mr. YATES. I want to ask you, there's so many other questions I wanted to ask you, but we'll skip those temporarily.

My last question deals with the *Adams Chronicles.* Have you seen the *Adams Chronicles*?

Mr. HACKNEY. I have seen some episodes of that, but not recently.

Mr. YATES. Why has this never come back on the air?

Mr. HACKNEY. That's a good question. I don't know.

Mr. GIBSON. It did go back on the air.

Mr. YATES. When?

Mr. GIBSON. Four years ago, I think.

Mr. YATES. Four years ago.

Mr. GIBSON. A weekly broadcast, I don't recall. It was first broadcast in 1976, and then rebroadcast in the late 1980s.

Mr. YATES. Why don't you do it more often? I mean it's a great picture, a great series of American history. I think it spent something like half a million dollars to put it out.

Who was the Chairman of the Endowment at that time?

Mr. CHERRINGTON. Mr. Berman.

Mr. YATES. Mr. Berman, yes, from California. I remember. He was so proud of that. I am too, and I want to see them. I didn't see any advertising telling me you were coming on the air with them, did I? Where did you show them?

This, I think, is of the same quality as the *Civil War*.

Mr. HACKNEY. Absolutely. Part of our frustration of course is we don't show them. They are made available by PBS and individual television stations make the decision to carry them or not.

Mr. YATES. Well, does PBS know you have it?

Mr. HACKNEY. Oh, sure.

Mr. YATES. How many video tapes are there in the Adams Chronicles? Or are there reels?

Mr. HACKNEY. It's a long series.

Mr. CHERRINGTON. Thirteen or 14 episodes.

Mr. YATES. That's why they don't want to take it on. I didn't realize it was that long.

Mr. HACKNEY. This does make a point that I was trying to make earlier. One of the things that the new Enterprise Office at the NEH is meant to do is to find ways to get those films shown again, to find new audiences. If not broadcast on PBS or on the Discovery Channel or A&E or a commercial channel, it's to get them in video cassette form into school libraries so they can be used by schools.

Mr. YATES. I think that would be wonderful. Thank you, Mr. Chairman.

Mr. REGULA. Mr. Skeen?

HOUSE AND SENATE AUTHORIZATION BILLS

Mr. SKEEN. Thank you, Mr. Chairman. I apologize for being late. I appreciate what you're doing, and I appreciate the line of questioning.

Let's go back to the bottom line on this money situation. On the reauthorization committees and how you said the bill hasn't been out of the House or the Senate, the Senate and the House both have not passed it. What are the major differences in the funding level, if any?

Mr. HACKNEY. There are dramatic differences in the funding levels in the authorization.

Mr. SKEEN. In the authorization that has to reach the House.

Mr. HACKNEY. Right.

Mr. SKEEN. I'm trying to get an idea about what kind of a conference situation we've got.

Mr. HACKNEY. Well, the Senate levels are much higher, as I recall.

Ms. ORR. The Senate authorization bill authorizes $160 million for FY 1996 and $152 million for FY 1997.

The House bill cuts us 20 percent in the first year and 20 percent in the second year.

Mr. SKEEN. Slow death.

Ms. ORR. Slow death.

Mr. HACKNEY. Twenty percent from the 1995 level?

Ms. ORR. Yes, from the 1995 levels.

Mr. SKEEN. What was that level of funding?

Ms. ORR. It was 172 million dollars.

Mr. HACKNEY. After the recision.

Mr. SKEEN. The 1996 funding level from this committee is 110?

Mr. HACKNEY. No,that's the conference level.

Mr. SKEEN. That's pretty drastic.

Mr. HACKNEY. Yes.

NEH IMPORTANCE TO NATIONAL PRESERVATION EFFORT

Mr. SKEEN. Let me ask you too, we were talking about the preservation aspect of the work on periodicals, literature, and so forth. Are there other entities in the United States that do partial preservation work of this kind at all?

Mr. HACKNEY. Yes. This is George Farr, who is the director of the division.

Mr. FARR. Good morning. There are no other project foundations or major sources of support for a national program like the United States newspaper program. Indeed, when that program was created with congressional support——

Mr. SKEEN. Is that another entity?

Mr. FARR. Pardon me?

Mr. SKEEN. Is that a part of your work?

Mr. FARR. Yes. One of our major national initiatives.

Mr. SKEEN. I am talking about other entities, aside from your organization, that preservation.

Mr. FARR. There's no other entity that supports this program.

Mr. SKEEN. Absolutely none?

Mr. FARR. The individual institutions that participate in the U.S. newspapers program, there is one major center in every state. They contribute to cost sharing. They assume some of the expenses of doing the project. We do not support these at a 100 percent level. We do not support anything at 100 percent level in the preservation area. So there is some contribution from the institution that is undertaking the work, but there are no other entities outside the support from NEH for this particular project.

Mr. SKEEN. So there's no major duplication of any effort?

Mr. FARR. None whatsoever.

Mr. SKEEN. That's what I'm getting at. This is the sole source.

Mr. FARR. No, there's none whatsoever.

Mr. SKEEN. Thank you.

Mr. HACKNEY. Do you want to comment on what we do with the Library of Congress or what does the——

Mr. FARR. The Library of Congress of course has its own preservation program, but it focuses only on its own holdings.

Mr. SKEEN. On its own collections?

Mr. FARR. On its own collections. It gets a separate appropriation from Congress.

Mr. SKEEN. What I am trying to get at is this, if there's any duplication of this effort somewhere or another that you folks——

Mr. FARR. There is not.

Mr. SKEEN. You folks could be the central point of organizing and getting it so that there isn't duplication and at least accomplish some kind of saving.

Mr. FARR. I think that is a fair statement of what indeed we are now doing. Every time a project we support identifies a newspaper, or any kind of brittle book, for instance, we have procedures in place where they search to be sure that that one has not been microfilmed before. So there never will be a duplication of Federal funds for any of the preservation that we support.

Mr. SKEEN. Who does the technical advancement as far as that kind of preservation?

Mr. FARR. The technical advice, we have a working agreement——

Mr. SKEEN. No, advice and advancement in——

Mr. FARR. Yes. We have a working agreement with the Library of Congress. They have a person on their staff who works directly with the states that are participating in the United States newspaper program. So we have a way of delivering the appropriate kind of technical advice to our grantees.

Mr. SKEEN. But you also have technical advancements, technology, new technologies, things of that kind for doing preservation work?

Mr. FARR. Yes.

Mr. SKEEN. What I'm getting at, is obviously the process today is a huge one, and it's also very costly.

Mr. FARR. That is correct. We're——

Mr. SKEEN. What I'm trying to get at, is there some way that we could do the work that you are doing now with better technology or advancement in some kind of technology?

Mr. FARR. I think the technology that we're now using, all the experts agree is the appropriate one for——

Mr. SKEEN. Most modern available to you?

Mr. FARR. Yes. That is correct.

Mr. SKEEN. That's what I was getting at. Thank you very much. I appreciate it.

Thank you, Mr. Chairman.

EUROPEAN GOVERNMENTS AND SUPPORT FOR THE HUMANITIES

Mr. REGULA. European civilizations of course are older than ours. I hear a lot about the fact that European countries subsidize the arts. How about the humanities?

Mr. HACKNEY. They do that as well. I have just come back——

Mr. REGULA. I am talking about the governments in European countries.

Mr. HACKNEY. Yes, through national societies like the Royal Academy or a similar group in every country.

Mr. REGULA. Are these public funds that they use?

Mr. HACKNEY. Yes, only public funds. They have very little private funds that are going into humanities work. They are quite active there, and well organized across Europe, as a matter of fact. There is a standing committee on the humanities of the European Science Foundation that organizes transnational research.

Mr. REGULA. Mr. Nethercutt, do you have any questions?

Mr. NETHERCUTT. Mr. Chairman, thank you. I'm sorry to be late today. I apologize for missing your testimony. I do just have a couple of quick questions. I may submit some more for the record, Mr. Chairman.

Mr. REGULA. The record will be open.

Mr. NETHERCUTT. I understand you folks talked a little bit today on the National Conversation.

Mr. HACKNEY. Yes.

MEASURING SUCCESS OF THE NATIONAL CONVERSATION

Mr. NETHERCUTT. Forgive me if this question has been asked and you have already answered it. To what extent do you think it has been a success? To what extent do you think changes should be made in the program in the next year?

Mr. HACKNEY. Well, I think it has been a tremendous success. I have talked a little bit about this. This is a clipping book of the press clippings from Conversations across the country. Ninety percent are very positive. The people who participated that I have talked with or heard from also come away thinking that it was a great experience that deepened their understanding of what it means to be an American.

We are reaching the end of our special competition. We're about to give the last round of grants for projects in the National Conversation. What I am seeking to do now is to find ways to extend the Conversation without the use of Federal money, which we will do. But the National Council on the Humanities that meets this month will be giving the last round of grants.

I think it has been extraordinarily successful, at a very modest cost I must say.

Mr. NETHERCUTT. How do you gauge success, I guess it is a fundamental question. How can we as legislators trying to be careful about how we spend money and also wanting to do substantive things with the money we spend, how can we be certain that there is success as you deem it to be success? How do you define it and is it an objective standard that we can aspire to? And what would that standard be?

Mr. HACKNEY. That's really a fundamentally tough question. We can count participants. We can sample their reaction, and what they think they got from it. That is going to be impressive. As the project winds down, we will be able to make very good estimates about the numbers who participated and also some notion of how they responded. I think that's going to be very positive.

The question of whether they were fundamentally changed in some way, measured objectively, is really hard to do. The NEH is not and ought not to be doing public policy. We in fact have a policy that we don't support things that are designed to convince an audience of a particular point of view. These conversations are meant simply to get people to think seriously about them. How you measure whether they felt seriously and whether their own understanding of the American creed, for instance, is enriched, is very hard to tell, except that we will have their own testimony about what they feel after going through it.

LEVEL OF PARTICIPATION IN NATIONAL CONVERSATION PROJECTS

Mr. NETHERCUTT. Are you satisfied with the level of participation thus far?

Mr. HACKNEY. We'd like to be in more truck stops than we are. That is very difficult for us. But in general, yes, it has been diverse certainly as to ethnicity and race, and somewhat as to class. We have a fair number of young people involved. But I think when we took this up, what we'll find is we weren't maybe as successful as we could have been with younger people. College students, we do very well in. But maybe not as successful as we'd like to be with school students and lower income Americans.

FINAL REPORT ON NATIONAL CONVERSATION

Mr. NETHERCUTT. What do you expect to be the final product of the National Conversation?

Mr. HACKNEY. A report. I think it's important that we try to report on what has been said, and what the range of opinion is, and what one can make of what Americans think about this. We are now getting organized to do that kind of report, which will be not so much a statistical report and a listing of who did what when, and who said what, but some interpretation of what Americans think.

The report itself will be a part of the Conversation—it can be circulated widely and read and can stimulate other conversation.

OTHER NEH INITIATIVES

Mr. NETHERCUTT. Just quickly to close, do you have any new program initiatives that you are scheduling for the next Fiscal Year that you can report?

Mr. HACKNEY. We are trying to operate differently and more entrepreneurially and to do things in a different way and to get more use out of the things that we do.

Mr. NETHERCUTT. Are you going to focus on one aspect of the humanities or another that is different from the last Fiscal Year? Are you going to use the money any differently this year than you did in the last few years?

Mr. HACKNEY. The one thing that we're beginning to do quite self-consciously is in the area of teaching, a program we call "Teaching with Technology", which is designed to fund projects that help teachers learn how to use advanced technology in the classroom. I think that's our toe hold on that problem of how to get teachers, humanities teachers in particular, adept and comfortable using the material that is now available.

We are also very interested in helping people create humanities programs that can be used in classrooms in CD–ROM or transmitted over the Internet or in other ways in digital form. So that is new. We're not doing that with new money. We haven't asked for new money there. I could sure use some.

Mr. NETHERCUTT. Couldn't we all. That's all I have, Mr. Chairman.

Mr. YATES. I just wanted to comment. I don't think they'd be more interested dealing with the cuts than preserving programs rather than trying for new initiatives. You have the money for new initiatives, is that correct?

Mr. HACKNEY. That is true, though as a long time administrator, I have this philosophy that even in the worst of times, you can't go into the bomb shelter, to go back to your metaphor. It's better rather than going into the bomb shelter to skip and hop across the neutral ground and try to dodge the bombs and to do things a bit differently so that you don't die intellectually, that you keep serving new audiences. But it's a minor difference between us there. Preservation is the basic thing.

Mr. REGULA. Mr. Skaggs.

Mr. SKAGGS. Thank you, Mr. Chairman. Good morning.

Mr. HACKNEY. Good morning.

Mr. SKAGGS. Sorry to be late. I was up with one of our Judiciary Committee subcommittees testifying about another silly idea for amending the Constitution. But I won't bore you with that. Perhaps you can have a National Conversation about it.

Mr. SKEEN [presiding]. Thank you, Mr. Skaggs.

RESTRUCTURING AND BECOMING MORE ENTREPRENEURIAL

Mr. SKAGGS. I appreciate the stamina that you and your colleagues at the Endowment have had to demonstrate over the last few months. Other than survival, I wanted to invite you to just extemporize on one or two of the most important things you have gotten done during this period of time.

Mr. HACKNEY. We realize that we have to operate differently, so in the process of cutting our size down, we have taken advantage of the situation to bring together programs in a different configuration, if you will, so that similar programs are now housed together administratively. The most important reconfiguration is in the new Research and Education division, which now has almost all of the activities that deal directly with basic research in the humanities. I think that's been a gain.

We have had to think about our core processes. That's still going on. We need to be able to operate very efficiently.

The one innovation that I think is most promising is the creation of the Enterprise Office, which has the task of sponsoring or managing all of the programs within the Endowment that cut across divisional lines, across bureaucratic lines, if you will. Let me give you an example. This is more important than it sounds. This is also the entrepreneurial arm of the Endowment. It is looking for partners outside the agency that can bring resources to help us reach different audiences and broader audiences with the same materials.

But inside the Endowment, we have not before this had a way of handling proposals that contained activities that were, let us say, preservation and research and a public program, proposals that did not fit easily within a single program division of the Endowment.

With the Enterprise Office, we will now have an office that will be able to create—to handcraft, if you will—a review mechanism and a way of judging and coming to terms with a proposal. For instance, a project that might digitize a collection of humanities materials but to transform those materials, those texts, or that manuscript collection into a teaching program on a CD–ROM, and to make that CD–ROM available to schools, which is an educational effort, and also to make it more available to the public, which is a public program. That single project would run the gamut from a preservation program to an education program, a research program, and a public program.

So now we have a way of handling that application process smoothly. I think that is going to be a great benefit.

UPCOMING NEH PROJECTS AND PROGRAMS

Mr. SKAGGS. I appreciate the intramural and process changes. I need also to be able to answer the question raised at a town meeting in Boulder, Colorado, or more likely in Arvada, Colorado, "What's the Endowment done for me lately?" What difference has it made in the lives of people? What have you gotten done extramurally over the last year?

Mr. HACKNEY. Well, the Teaching with Technology program that I think is one of the more promising new thrusts, which we've just been talking about. The National Conversation also has been going forward with renewed energy and continuing energy. There is a film that is meant to be quite stimulating with regard to the American identity that is being finished now that will be available for broadcast either in late spring or early fall that will be, I think, quite good. I've seen some of the rough cuts of it. In various ways even with fewer funds, we've tried to be as imaginative as we can be.

There will also be broadcast next fall a couple of documentary film series that I think are going to be extremely effective and popular. One on the history of the American West that is being done by Ken Burns, and the other on The Great War, World War I, that is, that I think is a documentary series that will have immense appeal nationally, and will deepen our understanding of our history.

NATIONAL IMPORTANCE OF NEH

Mr. SKAGGS. As you know, one of the things that I believe to be among your core missions and one of the things that there is simply no other entity that is in a position to carry out has to do with preservation of our heritage of historical documents, newspapers in particular, the work that you do in primary source material, the papers of our founders and important early public figures. I think that story bears repeating and explaining again why those projects and any others that you might like to add won't happen without a national entity bringing together a critical mass of funding and scholarship.

Mr. HACKNEY. I agree. It is just true that there is no other source of funds for those sorts of relatively unglamorous but quite necessary preservation and editing work that will make our understanding of our past much richer in the future and that will be available to students and scholars for a long time to come. There is no other national source for such support than the NEH.

Private donors are not likely to be able to stick with a project or program for 20 years. The Jefferson papers for example, have been going that long. There's very little public relations benefit from that for a corporate foundation, for instance. Yet it is fundamentally important work, and it must be done. It takes exacting scholarship over a number of years before those things come to fruition in a book or a CD–ROM.

It also is expensive and goes beyond the capacity or the interest of most private donors and foundations, frankly, to fund a project over a period of years that is relatively expensive in relation to the output, though the output is critically important.

LOSING GROUND IN PRESERVATION EFFORT

Mr. SKAGGS. Are we gaining or losing ground on the preservation of 18th and 19th century newspaper and journals——

Mr. HACKNEY. At the current level of funding, that is, 110 million dollars, I think we'll be losing ground. Let me ask George Farr to comment a bit.

Mr. FARR. Yes. We will be losing ground. For instance——

Mr. SKAGGS. By that, I mean some of these papers will no longer exist in the form that is copyable and therefore will no longer be accessible to any kind of general audience.

Mr. FARR. One can infer that, because we are focusing on those papers that are most at risk because of the acidic content of the paper. For instance, this year at our reduced level, there will be 20,000 fewer brittle books that will be microfilmed as a result of the cut this year. Chairman Hackney mentioned this earlier, and also the fact that 230,000 disintegrating newspaper pages will also not be microfilmed.

So you could say that we are losing ground in that way.

BALANCING NATIONAL NEEDS IN THE HUMANITIES

Mr. SKAGGS. Help me with this because at least at my level of understanding, whereas you probably can't get significant foundation or private philanthropy and support of that preservation activity, arguably the Ken Burns series on the West, with the kind of profile that he now commands, could be funded other ways. How do you strike the right balance, given that nobody else is going to be doing this, and if it's gone, it's gone forever?

Mr. HACKNEY. That is also a very tough question. We pursue a philosophy of having a balanced program in the humanities. That is, we support basic research and other scholarly efforts like these preservation projects. We support education projects that improve the education experience that students receive at the school level and the college level. And, we support public programs. I think this balance is probably the right philosophy. But it does bring to mind several issues that you've raised.

One issue is: Can't Ken Burns find private funds to do his work? Well, he is the most visible documentary film maker now operating in the non-profit world. But even he says repeatedly and very strongly that he can not find corporate support that will allow him to do the films in the way that he wants to do them, that is, very thoroughly and based on a high level of scholarship. It's a very expensive undertaking. Without both the funds that the NEH provides and also the imprimatur of quality that our review system provides, he could not find the corporate support even to do his films. He is the only one, although Henry Hampton may be close, and there may be a few others that are recognizable in the professional community, but very few have the sort of recognition that Burns has.

If we were not there operating in the public programs area funding documentaries, we would not be able to find the next Ken Burns. He started with very modest NEH grants and built up his skill level and also his recognition. There are other Ken Burns out there who are going to enrich our understanding and experience of American history. Where are they going to get their start if we're not there to help them?

Mr. SKAGGS. Where are they going to get their original source material if we don't preserve them?

Mr. HACKNEY. Exactly. That's right. There is a fundamental level here. You might say why doesn't NEH do only those things that nobody else would do—those things that are invisible and unglamorous, the scut work of the humanities basically, that nobody else is going to do—and leave the glamorous stuff, the documentaries to someone else? Well, I think other people wouldn't do the documentaries at the same level of quality.

But it is also a reality of life that unless people in Ohio and other places understand what we do, the political support for keeping NEH going will not be there. That's why having some programs that the public can participate in and understand and that enrich their lives is really quite important for us.

Mr. SKAGGS. Thank you, Mr. Chairman.

Mr. SKEEN. Thank you. Mr. Yates?

BOOK PRESERVATION IN OTHER NATIONS

Mr. YATES. I wanted to ask, in view of the fact that you have just testified that you will not be able to do 20,000 books that were originally scheduled, how many books are scheduled, were scheduled originally for saving?

Mr. FARR. We have a goal of microfilming three million of the most important brittle books over a 20 year period. To this date, when current projects that have now been funded are completed, we will have filmed approximately 770,000 of that 3 million figure.

We are losing ground in the original estimates of what we could do in the 20 year period, but we're moving forward. I do not think that the amount that we have filmed with congressional help thus far has been inconsiderable. I think it's fair to say that no other country in the world has ever undertaken an effort of quite this magnitude.

Mr. YATES. Are other countries trying to do the same with their books?

Mr. FARR. Not to the extent that we are. I think without——

Mr. YATES. Are any trying to do it to any extent?

Mr. FARR. Yes. There are countries, particularly in Western Europe.

Mr. YATES. I mean is England doing it, for example? Which to my mind goes back into the early part of history. If we lose materials that are source materials there, I think it would be a great harm to our civilization.

Mr. FARR. There are current programs in the British Library, and in the libraries at Oxford and Cambridge, that are working to preserve the resources that are held in the British Isles.

Without answering at too great length, every country arranges and holds its cultural resources in a different way. So very often the look of preservation efforts, say in Western Europe, differs because the preponderance of a country's cultural holdings is centered in a single, perhaps great national library.

Mr. YATES. Those libraries are governmentally supported?

Mr. FARR. Yes, governmentally supported. On the other hand, the United States is characterized by a pluralistic system of holdings, and perhaps appropriately so, by the fact that it also is the source of a very important collection for American history and culture. And so the challenge for the United States has been to create a coordinated national program involving many, many institutions. And for that, we do, we like to think—and you have thought so in the past—need national coordination, so that money is not spent——

Mr. YATES. I haven't thought so only in the past; I think that way in the present as well. [Laughter.]

Mr. FARR. I just meant to hark back to the beginning of these programs which, after all, are quite new.

Mr. YATES. That's right.

COMPETITIVE SELECTION OF PRESERVATION PROPOSALS

Now you responded, with respect to books, that you're going to not be able to preserve 20,000 books out of the 3 million and you're going to lose some of the 3 million books by the time you get to them. What about papers that Mr. Skaggs was asking about? What about historical papers; are you going to lose some of those as well?

Mr. FARR. Yes, because we also support the preservation of special collections and archivable materials of various sorts——

Mr. YATES. Well, give us an example of what you fear——

Mr. FARR. Of what will be lost?

Mr. YATES. Of what you fear will be lost. Or, presumably, as I envision what you're doing, you have a list of things that you want to do.

Mr. FARR. No, we do not do that.

Mr. YATES. What do you do?

Mr. FARR. Essentially, what we do is allow institutions to come to us of varying size and types—libraries, archives, museums, historical societies—and they identify a collection, say, that they believe is of national significance. They describe how it is at risk; they describe what needs to be done to catalog it and make it available for users. These proposals are then sent to panels and specialist reviewers. They are evaluated in a competitive fashion.

Mr. YATES. I see.

Mr. FARR. At the end of that cycle, we grant monies to those projects that are deemed most worthy. There has never been an effort—and I think it would be impossible to do so, even to achieve agreement—on what would be a finite number of the most important collections and the most important institutions. What we have done, essentially, then, is to encourage such applications and then have the most responsible and knowledgeable people identify what is most important to——

Mr. YATES. Well, but if you're waiting for initiatives by scholars and universities for the preservation program, aren't you likely to lose an awful lot of papers?

Mr. FARR. Well, we have many, many applications, much more than we can fund. I can answer that question. It's not usually the scholars that identify the collections in need of preservation, because the people closest to these collections are the librarians and the directors and the curators of museums, and so on, that see the condition of these materials and see how they're used. We involve scholars also in the evaluation of the priority and significance of these materials for working in humanities. So it is, in effect, a collaborative experience, but the people who identify the collections are essentially those that are responsible for them at the various repositories.

PRESERVING U.S. NEWSPAPERS

Mr. YATES. Well, let's move to the newspapers now.

Mr. FARR. Yes.

Mr. YATES. How do you decide which newspapers to preserve? Are you also losing newspapers which were going to——

Mr. FARR. We are losing ground——

Mr. YATES. That's what I mean.

Mr. FARR. Yes, but we still have a goal of finishing the——

Mr. YATES. How do you decide which newspapers to preserve? Do people come forward with newspapers they want reproduced or what? How do you do it?

Mr. FARR. Here the focus is on, basically, 19th-century newspapers that are at risk because of the acidic quality of their paper. The newspaper program works in a slightly different way. Here the State is the central doer of the project. We initially have a grant that takes a statewide survey of all the holdings and where they are, and then one institution within the State takes responsibility for cataloging them and seeing to it that they're microfilmed.

Here we're trying to be as comprehensive as possible and reach the smallest town, as well as some of the largest cities in the State. Where we cannot and do not have enough money to microfilm all a State's newspapers, we will try to get a representative selection of newspapers from every county, every township, as well as the major cities.

SELECTION OF EDITIONS PROJECTS

Mr. YATES. Do you designate people whose papers you want reproduced, like Benjamin Franklin, for example?

Mr. FARR. Yes, the Endowment has vigorously been pursuing a course whereby we fund projects to edit and create authoritative texts for important American historical figures and literary figures.

Mr. YATES. Well, how many do you have?

Mr. HACKNEY. We have, must have several dozen going now.

Mr. HERBERT. Eighty editions.

Mr. YATES. Eighty? Now how do you decide which figures? Are these all historical figures in the history of our country?

Mr. HERBERT. Some literary figures.

Mr. YATES. And some literary figures as well. Who decides that? Do you decide which ones to do?

Mr. HACKNEY. They go through the same review process. They're reviewed in a multi-level process. A review panel of experts looks at the project and asks whether that team can do it and also how important is it, and is this a good project, and that assessment is reviewed by the National Council on the Humanities and then passed on by me.

Mr. YATES. Well, now here your budget's being cut. You have Benjamin Franklin's papers that you want to do. You have Franklin Delano Roosevelt's papers that you want to do. You have Ulysses Grant's papers that you want to do. Suppose you're out of money for Benjamin Franklin's papers; are you going to shift any money over to finish Franklin, who is a very important figure, from somebody who isn't as important? What do you do?

Mr. HERBERT. What we do——

Mr. YATES. Do you let the less important figure die?

Mr. HACKNEY. This is James Herbert, who's the Director of the Division of Research and Education.

Mr. HERBERT. In the end, something terrible like that might happen. What we did this year was to say, because of the reduced funding for these editions projects, that only projects that had an active grant on the day of the application deadline, and that's July 1st, would be considered eligible for funding this year. That meant that our thinking was that these were editions projects that had active editors, people who were skilled in translating these documents into digital form, and so on, and that we didn't want them to close down.

This year we had about 90 applications for editions projects but only the continuing ones, 28 of those, were considered eligible for funding. Of those 28, perhaps only two-thirds we'll be able to fund this year, and then only for one year, until next May 1st. So, essentially, what we did was keep alive the best two-thirds for another year.

Mr. YATES. And the others are in a morbid state? You've going to send them to the National Institutes of Health or something? [Laughter.]

You have 3 million books you're trying to save. Are all those American books or are they just important books, whether they're from the United States or Europe or Asia, or wherever?

Mr. FARR. We started the preservation initiative focusing principally on American imprints or published material, but the holdings of our libraries are such—and the fact that our scholars and our citizens wish to use materials that were originally published in other countries, since we have such extraordinary collections in those areas—that we also have expanded the program to preserve materials that weren't originally published in the United States but are thought to be very important.

DISTRIBUTION OF FY 1996 BUDGET CUTS

Mr. YATES. Do you get frustrated with Mr. Hackney here because he doesn't give you as much money as you should have? [Laughter.]

Mr. SKEEN. Don't start a family argument. [Laughter.]

Mr. YATES. He likes other programs better than, say, you and I like the preservation program.

Mr. FARR. I am never frustrated with Mr. Hackney. [Laughter.]

Mr. YATES. I'll see you outside. [Laughter.]

Mr. HACKNEY. I feel confident. Let me say, in that regard, as worried as we all are about the preservation program, it has received a relatively modest cut; it's a serious cut but less stringent than the cuts in the Research and Education programs division.

What is your percentage cut?

Mr. FARR. Twenty-three.

Mr. HACKNEY. Twenty-three percent.

Mr. FARR. From last——

Mr. HACKNEY. From last year, and——

Mr. YATES. Twenty-three percent.

Mr. HACKNEY. Whereas the cut in the research and education programs approaches 60 percent.

Mr. YATES. Sixty percent? The States were cut 5 percent?

Mr. HACKNEY. Five percent; right.

Mr. YATES. States are more important than the other?

Mr. HACKNEY. Well, it's very hard——

Mr. YATES. I won't dispute that, if you say yes, because I have seen some of the programs from the States and they're very good.

Mr. HACKNEY. They are good, yes.

Mr. YATES. I mean, Minneapolis, Minnesota comes forward with wonderful programs; so does Texas.

Mr. HACKNEY. Yes, I agree.

Mr. YATES. At any rate, thank you, Mr. Chairman.

Mr. SKEEN. Thank you, Mr. Yates. I hope you didn't start any more controversies than we've already got. [Laughter.]

Mr. YATES. Well, I hope to, Mr. Chairman.

Mr. SKEEN. Yes, I know you do. [Laughter.]

Mr. Nethercutt?

Mr. NETHERCUTT. I just want to follow up on a line of questioning that Mr. Skaggs touched on briefly in reference to Mr. Burns, who was an early recipient of NEH grants. My understanding—correct me if I'm wrong—is that a recipient of a grant who goes on to some commercial success is required to pay the grant back. Is that the extent of obligation?

Mr. HACKNEY. Right.

INCREASING INCOME RECOVERY RATE

Mr. NETHERCUTT. Would you support a program whereby the commercial success of a recipient would insure more to the benefit of the United States than it does now, than just returning the grant money?

Mr. HACKNEY. I certainly would.

Mr. NETHERCUTT. To what extent would you be willing to impose that kind of a contractual agreement in the agreements which will be signed with the people who receive Federal funds?

Mr. HACKNEY. There is some wording in the pending Senate authorization bill that would allow for that sort of recovery beyond the investment of the Endowment. I think that it would be better to handcraft each particular project and to have words in the contract, if you will, in the grant award letter that would allow the Endowment to get some of the benefit of any revenue flows that come from secondary use of the product. In the case of film documentaries, it would be not only the videocassette sales, but also educational materials that might be produced and beer mugs and t-shirts, whatever the product is.

Mr. SKAGGS. Would the gentleman yield here?

You're talking about taking an equity position rather than just a debt position?

Mr. NETHERCUTT. Absolutely. I mean, I think that's capitalism. Football players, college kids, who get scholarships, and through college they go on to the pros, they give back by setting up big scholarships for the benefit of the people that allowed them to achieve the success they had. It seems to me to make perfect sense in a time of financial crunch when we're worried about preserving books, and we all support that, as far as I'm concerned, but there's not enough money. It seems to me Ken Burns loses more a day in change. You could use that money is the point I'm making.

Mr. YATES. Is he that rich?

Mr. NETHERCUTT. He's done pretty well.

Mr. HACKNEY. Actually, he's done well, but he's not that rich. [Laughter.]

Let me make two points.

Mr. NETHERCUTT. Who else would you suggest we might talk about?

Mr. HACKNEY. He does this all through his nonprofit corporation, so he doesn't benefit personally.

Mr. NETHERCUTT. I see.

Mr. HACKNEY. I do support this, and I think we ought to pursue it aggressively, but there are two things that can be said. One is that Ken Burns is the only one of our grantees, so far, who has produced a lot of positive revenue beyond the cost of the grant, but we ought to be alive to the possibility that other things will come along. The second point is that there is an important policy issue here, though, that I think we all ought to be aware of and that I'm willing to face up to. And it is that, to the extent that we benefit from profit in a project, there is a built-in incentive to us to fund things that are going to find a public, a use.

Mr. NETHERCUTT. Sure.

Mr. HACKNEY. And maybe this is Mr. Skaggs' point, I think. Maybe that's not what we ought to be doing. We ought to be really doing those things that don't have a commercial public, if you will. This will give the Chairperson of the Endowment some hard choices to make in the future, if this possibility for revenue-sharing is theirs, and I think it should be. I think I am strong enough to find the correct balance between the profit motive and doing the public service that we should be doing, and I hope my successors will be as well.

Mr. NETHERCUTT. Sure. I might just follow up quickly and say I know a lot of money goes to universities, as I understand it, for NEH grants, and so on. And I know universities have their struggles. On the other hand, as universities and institutions of scholarship there ought to be some moral obligation or some marketing that can be made to the wonderful colleges of the country, who have their foundations for a lot of purposes, to share back, give back some of that which they have received from the taxpayer in order to perpetuate that which has benefited not only them, but society. So I'd like you to think about that in the coming year, and perhaps——

Mr. YATES. If they gave anything back, I would hope they'd cut their tuition figures. [Laughter.]

Mr. SKEEN. On that note, we'll go vote. [Laughter.]

I think we'll bring it to a conclusion.

Dr. Hackney, I want to tell you and the people who are with you that support you that you do an outstanding job, and we're very reluctant to take on this kind of a prodigious effort of skimming down the money for a project that I think is so worthwhile, the one that you folks do. We appreciate your dedication. We appreciate your awareness of what our problem is, as well as yours. Maybe together we can come to some point where we could reach a happy compromise.

Mr. YATES. Can I——

Mr. SKEEN. Yes, Mr. Chairman.

Mr. YATES [continuing]. Go along with you on that hope and express the hope that you and I may share the opportunity to put a legislative provision in our appropriation bill authorizing that.

Mr. SKEEN. We may very well do that, Mr. Chairman.

Mr. YATES. Okay.

Mr. SKEEN. And thank you.

Mr. HACKNEY. Thank you very much, and thank you for the chance to testify.

Mr. SKEEN. The committee is adjourned.

[The information follows:]

NATIONAL ENDOWMENT FOR THE HUMANITIES

FY 1997 House Appropriations Hearing

Committee's Questions for the Record

Question 1. The FY 1996 conference report proposed significant reductions to NEH. What are you doing to accommodate these reductions into your downsizing and restructuring efforts?

Answer. The House-Senate conference committee's proposed reduction in our FY 1996 funding essentially forced us to implement a radical downsizing and restructuring of our grant programming. Due to the anticipated loss of federal funding, for example, we eliminated almost 40 percent of our staff positions, reduced our program divisions from six to three, and trimmed the number of discrete grant programs we administer from 31 to nine. The FY 1996 conference reduction in our budget thus has been fully incorporated into the newly transformed NEH.

Question 2. Are these reductions consistent with National Performance Review (NPR) recommendations?

Answer. Although no NPR recommendations were issued for NEH, we believe that the agency's restructuring has been consistent with NPR's guiding principles. In making decisions to retain and reconfigure programs, we asked ourselves whether or not the programs were critical to the agency's mission and were best done at the national level--two of the major considerations driving the National Performance Review.

Question 3. How will 1996 funding affect FTE levels?

Answer. The FY 1996 conference budget level for NEH is a 36 percent cut from our FY 1995 appropriation level. Because of that funding cut, the Endowment's authorized 262 FTE in FY 1995 will decline to 180 FTE in FY 1996 and to 175 FTE in FY 1997.

Question 4. How many actual positions will be eliminated as opposed to open positions that will not be filled?

Answer. We RIF'd 53 on-board employees in December 1995, about 24 percent of our filled positions at that time. The number of authorized positions--filled and unfilled--before the FY 1996 reduction-in-force (RIF) was 276. The number of authorized positions after the RIF was 170, a reduction of 106 positions.

Question 5. Will conference funding levels affect program delivery? If yes, how?

Answer. Inevitably, program delivery will be starkly diminished. The conference FY 1996 appropriation level of $110 million represents a 36 percent reduction from our FY 1995 funding. National programs administered by NEH directly, rather than by the state humanities councils at the local level, will be cut even more; funds available for those programs have been reduced by 42 percent. In "real," inflation-adjusted dollars, the Endowment's budget has declined 65 percent from FY 1979, and is now actually lower than it was in FY 1972. And, through RIFs and attrition, the Endowment's staff has dropped 38 percent in one year.

Even before the subcommittee began to consider dramatic reductions in the Endowment's budget, this agency was aggressively implementing administrative efficiencies in conjunction with the government-wide reinvention effort and exploring innovative synergies with outside funders and program providers. Obviously, the scope and suddenness of the budget cut we sustained this year have only intensified our search for ways to use available resources in the most effective way possible. Already, we have in place a drastically streamlined administrative structure and are in the process of launching an "Enterprise" program that we hope will significantly amplify the resonance of what we do, enabling us to reach more Americans with each tax dollar.

Still, program delivery at $110 million cannot be what it was at $172 million. In FY 1996:

-- Summer seminars and institutes for school teachers and college faculty will be reduced by 30 percent. As a result, 600 fewer educators will be able to spend 4-8 weeks studying the subjects they teach under the guidance of some of the nation's leading scholars, and the 100,000 students these teachers see each year will lose the benefit of instruction grounded in recent academic training.

-- No new projects to publish authoritative texts of such source documents as the papers of American presidents will be funded, and as many as 30 percent of the long-term documentary editions projects currently in progress may be denied continued funding. Nor will we support any new projects to create dictionaries, atlases, encyclopedias, and other reference works. English translations of foreign-language works, much used in undergraduate courses, are not being funded at all.

-- 20,000 brittle books and 230,000 disintegrating pages of historical newspapers will not be preserved on microfilm; 130,000 museum objects will not get needed conservation treatment.

-- Half as many museum exhibitions will be supported. Sharply curtailed funding for documentary films will mean that two or three years from now opportunities for wholesome, intelligent television viewing will be considerably fewer and the ranks of the kinds of emerging documentarians who get their start as a result of an NEH grant, the Ken Burnses of tomorrow, may be thinner.

-- Over $20 million in non-federal contributions to humanities institutions will probably not be made because of cuts in the NEH Challenge Grants program.

Question 6. What specific actions have been taken to reorganize NEH?

Answer. The Endowment has been redesigned to create a leaner, more focused, and flexible agency in order to adjust to a 1996 budget reduction of 36 percent. In place of the six divisions and 31 programs that existed a year ago, a more streamlined Endowment now comprises three divisions and nine programs. Dramatically reduced as a well, the Endowment's staff now have a greater variety of responsibilities, beyond and across program lines.

In adjusting to a budget reduction so large, we could leave no program untouched. We opted, however, not to weaken all our efforts by cutting equally across the board, but to give greater support to those activities that best meet our guiding tenets; that is, activities that are best done at the national level, that have long-term impact, that have few other sources of support, that strengthen the institutional base of the humanities, and that reach broad sectors of the American people.

We concluded that the Endowment should focus on the following areas:

- supporting original scholarship,
- preserving the American cultural heritage,
- providing learning opportunities for the nation's teachers, and
- engaging the American public in the humanities.

Public and educational programming will also continue under the energetic direction of the fifty-six state humanities councils.

Question 7. Have you consulted with the humanities community before implementing a reorganization plan?

Answer. In developing this new configuration, we consulted broadly both within and without the agency.

Question 8. To what extent do you consider non-federal funding sources when formulating your budget and prioritizing your programs?

Answer. The availability of non-federal funding has a limited influence on the allocation of funding among our programs. The decision to establish our Teacher-Scholar program in the 1980s, for instance, stemmed in large measure from our ability to secure significant private sector support for the program. Similarly, we are able to make use of our authority to award Challenge Grants and Treasury matching funds to direct matching offers to programs that have demonstrated a capacity to secure matching support. This said, decisions on program priorities typically rest on considerations other than the availability of non-federal support. First and foremost, we look to the Endowment's enabling legislation, which provides the overall framework for the agency's priorities and emphases. The Congressional declaration of purpose in the legislation provides the general guideposts for NEH's program planning, and the bill's "establishment" paragraphs then frame our specific programmatic emphases.

Question 9. Based on the FY 1996 conference funding levels, what programs will no longer be funded?

Answer. As a result of the FY 1996 conference funding level, the Endowment eliminated several grant programs entirely, including Dissertation Grants (a program of grants to Ph.D. students in the humanities to complete work on their doctoral dissertations); Study Grants for College Teachers (a program of short-term grants to college teachers with heavy teaching responsibilities to conduct independent study on important topics in the humanities); Publications (a program of small subvention grants to help non-profit presses publish and disseminate works of scholarly distinction in the humanities); and Younger Scholars (a program that provided grants to high school and college students to spend the summer studying and writing about an important topic in the humanities).

In addition, many other NEH grant opportunities--including, for example, our support for archaeological research, research conferences, undergraduate curriculum development, collaborative education projects between high schools and colleges, humanities studies of science and technology, translations into English of important foreign language texts in the humanities, and summer stipends for humanities scholars--had to cancel or suspend their grant competitions for the current fiscal year.

Question 10. The Committee recently approved a reprogramming to accommodate your downsizing efforts. How are these funds being used?

Answer. The House and Senate Appropriations Subcommittees authorized the use of up to $4 million in FY 1996 program funds for costs associated with the reduction-in-force necessitated by the substantial decrease in our appropriation. Our current estimate for these costs, however, is only $1.9 million. This lower estimate is the result of measures the Endowment began taking in the summer of 1995 when it became apparent that our budget was going to be cut drastically in FY 1996. These measures included a hiring freeze, outplacement services, and other actions that minimized the number of involuntary separations that were eventually required.

The $1.9 million is being used to pay costs that are a direct result of the FY 1996 reduction-in-force, including: unused annual leave payments; severance pay; unemployment compensation; salary and benefits for RIF'd employees during the required 60-day notification period; pay retention for downgraded employees; outplacement workshops; personnel processing; employee appeals; and office space reduction and reconfiguration.

Question 11. What is the status of your reauthorization?

Answer. On May 10, 1995, the House Committee on Economic and Educational Opportunities passed H.R. 1557, a bill to reauthorize the National Foundation on the Arts and the Humanities Act of 1965, as amended (NFAH Act). A Senate bill to reauthorize the NFAH Act, S. 856, passed the Committee on Labor and Human Resources on July 19, 1995. No further action was taken on either of these bills in the first session of the 104th-Congress.

Question 12. Do you expect to see a reauthorization bill pass the Congress before this Committee completes its work on the FY 1997 budget?

Answer. We have received no indications from our authorizing committees in the House and the Senate that a reauthorization bill is likely to pass the Congress in the near future.

Question 13. Are you developing a strategy for seeking private sector funding for the humanities?

Answer. Yes. We have established within NEH an Enterprise Office, among whose purposes is to stimulate nonfederal support for humanities activities and to find new partners who can complement and amplify our programs. A parallel effort is being mounted by a group outside of NEH that is seeking to form a nonprofit entity that will raise money in support of humanities projects.

Question 14. What is the status of this effort?

Answer. The Enterprise office is already at work developing priorities and seeking external partners. Among first initiatives planned for this office is the development of working partnerships with the tourism industry to promote increased visitorship to the nation's cultural and historical sites.

Meanwhile, we understand that the group seeking to increase non-federal support for the humanities is moving forward on its plans to form a 501(c)3 entity and is expecting to lease space here in Washington. We have been told, however, that this group's fund-raising expectations are quite modest.

Question 15. Do you have the authority to receive and invest funds?

Answer. Our enabling legislation grants us authority to receive and match gifts contributed in support of humanities projects. We do not, however, have the authority to invest contributed funds. We would welcome a change in our enabling legislation that would permit us to invest funds in a way that would increase the amount available for important humanities work.

Question 16. Have you considered the possibility of establishing a separate foundation?

Answer. We do not have legislative authority to establish a separate foundation. We are hopeful that such authority will be granted to us when our enabling legislation is renewed. This would put us on par with a number of other federal cultural entities, such as the Smithsonian, the Library of Congress, and the National Trust for Historic Preservation. A separate group of individuals is forming a group to raise funds independently.

Question 17. Do you have an estimate of the level of private sector funding that could be raised for the humanities, negating the need for Federal support?

Answer. Although the level of private funding for the humanities is not well documented, the data we do have indicate that the humanities do not fare particularly well in the competition for scarce philanthropic dollars. One recent compilation of data found that in 1993 the humanities received only 1.9 percent of all giving from the nation's 1,020 largest foundations. Another recent study also points to the relatively insignificant level of philanthropic support for the humanities. The study identified about two dozen foundations that provided substantial funding for the humanities. The largest of these--the Andrew W. Mellon Foundation--expends but $30 million annually in support of the humanities, and representatives of this foundation have indicated that any increase above this level would lead to an untenable distortion in the Foundation's other programs. And among the remaining foundations, only two had separately identifiable humanities programs. The study concludes that NEH is "by far the largest supporter of the humanities compared to the private sector and to other units of government."

The suggestion that foundations will step forward to fill the gaps created by cuts in federal funding for culture has been met with considerable skepticism in the philanthropic community. James Joseph, president of the Council on Foundations, has observed that if foundations were to make up for the loss of federal support for cultural, welfare, environmental programs, they would be forced to spend all their capital and go out of business.

Question 18. What level of private sector funding would be sufficient to meet the demand for funding the humanities programs?

Answer. At a minimum, the private sector would need to contribute at least the amount of our annual appropriation if it were to sustain the scope and quality of humanities programs that currently benefit from federal funding. But we also need to bear in mind that the Endowment turns away four of every five applications submitted to our programs, many of them highly rated and presumably meritorious projects. Consequently, the amount of private funding required annually would be considerably larger than our presumed FY 1996 appropriation of $110 million. And this does not even factor in the many types of humanities activities that are not currently eligible for Endowment support but that are important to the nation nonetheless.

Question 19. The FY 1996 conference report assumes a two-year phase out for NEH. Have you developed a phase out strategy?

Answer. Given the fact that NEH is the single largest source of support for the humanities nationwide, there is no conceivable phase-out strategy that would enable the NEH--or any other entity--to begin to approach the level of support NEH provides for humanities activities.

Overwhelmingly, the fund-raising experts and cultural institution heads we consult have been telling us that private contributors cannot, in addition to what they already do for the humanities, annually fill a funding gap equivalent to the Endowment's budget. If anything, humanities contributions may actually be less forthcoming in the future, as reductions in government spending for social programs cause foundations and corporations to redirect their giving toward pressing societal needs. Establishing a permanent endowment fund for NEH does not look very promising either; approximately $3 billion would be needed to generate annual investment income equal to our FY 1997 budget request of $136 million. None of the major private universities--institutions that dwarf the size and budget of the Endowment--has attempted fund-raising on this scale.

During the past year, we have been preparing for the likelihood of a major funding reduction in FY 1996 by undertaking an orderly transition to a smaller and restructured NEH, one capable of finding creative ways to involve new funding partners and to amplify the beneficial "echo" of the projects we do support. Rather than planning to shut down, we have been working to keep alive, to the greatest extent possible, the Endowment's historic mission of advancing education, research, preservation, and public programming in the humanities.

Question 20. Which of your programs would survive without federal support?

Answer. It is not clear that any NEH program could survive as a privately supported entity. The Endowment exists precisely to supply something lacking in the private sphere: a national focus for promoting progress in culture and learning. As originally conceived and as consistently administered during the thirty years of its history, the Endowment is the institutional expression of the benefit all Americans derive from the strength of our national intellectual life. Were there no federal support for the Endowment, private giving for the humanities would, of course, continue; but this level of support is minimal. Without federal support, the Endowment in any recognizable form would end. The Endowment's unique merit-based grant competition--one widely respected as rigorous, fair, and efficient--would no longer confer support and recognition on nationally outstanding humanities institutions, scholars, and educators.

But because the Endowment's programs have always been conducted as a partnership between the federal government and private, state, and local funders, some of the activities that we support would continue without federal support, though at a significantly reduced level and without the meritocratic stimulus that a nation-wide grant competition provides. The Endowment rarely provides full funding for the activities that it sponsors. On average, each federal dollar that the Endowment awards is matched by $1.38 in institutional cost sharing and third-party gifts contributed towards the specific project supported by our grant. For example, the Endowment is the largest single source of support for research in the humanities, but most colleges and universities also offer their faculty support for research in some form. Indeed, many voluntarily supplement the modest fellowship stipend that an NEH grant provides. Ending federal funding for the Endowment will not abolish the long-standing academic custom of providing institutional support for faculty research. What it will do is greatly reduce the availability of support for research in the humanities--particularly for institutions that are not well endowed.

Question 21. If two years is not a sufficient length of time for a phase out, how much time will you require to shift to private sector funding sources?

Answer. As indicated in our answer to the previous three questions, we do not think the private sector can make up for the loss of NEH, therefore shifting NEH activities to the private sector is not feasible. Were NEH eliminated, rather, a significant percent of humanities projects would cease to exist.

Question 22. Last year there was a great deal of controversy about the National History Standards. What is the current status of the National History Standards?

Answer. Following the critical reception that greeted the history standards upon their initial release, two privately funded panels were established by the Council for Basic Education (CBE) to conduct a systematic review of the U.S. and world history standards documents. The panels, made up of historians, teachers, and business and political figures, met over the summer and fall and issued their report this past November. In this report, the panels concluded that with appropriate changes (especially the dropping of the controversial teaching examples) the standards were worthy of revision. The History Center has spent the past five months making changes to the standards along the lines of the CBE recommendations, and in early April the Center released a revised edition. This new edition has been endorsed by the chairs of the two CBE panels and the president of CBE.

Question 23. Have you resolved the problems associated with the National History Standards? If yes, how?

Answer. As indicated in our answer to the previous question, the National Center for History in the Schools has revised the history standards to address the criticisms directed at the documents.

Question 24. What have humanities institutions told you the impact would be if there were further sizable reductions in funding for NEH?

Answer. Almost without exception, they say they will be hurt badly; because the universal expectation is that reductions in federal funding for NEH will not be accompanied by any increase in philanthropic giving or in state and local government spending for the humanities.

Last June, in a presentation to the President's Committee on the Arts and Humanities, Alberta Arthurs of the Rockefeller Foundation described some of the findings of a now published study of private sector support for the arts and humanities (Nina Kressner Cobb, Looking Ahead, Private Sector Giving in the Arts and Humanities, funded by the Rockefeller Foundation in conjunction with a grant from the Texaco Foundation.) After noting that "[t]he NEH is the single most important donor agency for the humanities in the country, providing almost twice as much in funding for the humanities as do the private sector donors...," she went on to say:

> We have interviewed about forty private sector donors in private, corporate, family and community foundations, asking a set of questions about their funding habits, the future of funding as they see it, their relationships to each other, to the public sector. Because there has been voiced an expectation that arts and humanities funding can be 'privatized,' that the private sector can 'fill the gap' if public support diminishes, we were specific in asking these donors how cut-backs in federal and state funding would affect their funding.
>
> Every donor except one reported that their foundations are not in a position to increase their culture portfolios.

Most humanities institutions that receive NEH support rely on a variety of funding sources. For them, cuts in NEH funding shrink their resources and possibilities for cultural programming but do not necessarily imperil their institution's continued existence. Other humanities institutions--such as the state humanities councils, the independent film companies that produce historically rigorous documentaries for television, many long-term academic research projects such as Presidential papers, and much of the national effort to preserve brittle books and documents--have relatively few sources of support other than the Endowment. For them, eliminating NEH would mean an immediate falloff in the quantity and quality of what they can do, or that they cease operating altogether.

Last January, speaking on behalf of the New Hampshire-based Bipartisan Campaign for Arts and Humanities, film documentarian Ken Burns assessed the likely consequences for the average citizen of a federal withdrawal from cultural sponsorship:

> There are those who are sure that without the Endowments, the so-called 'marketplace' would take care of everything; that what won't survive in the marketplace doesn't deserve to survive. Nothing could be further from the truth. . . .
>
> The marketplace does not save the old papers of a founding father, it doesn't fund research into that which enriches our heritage--not necessarily our pocketbooks or what is fashionable at the moment, and it does not fund the local poetry reading, or dance recital, or symphony group, or lecture on great books that take place daily from Maine to California.

Writing in The Chronicle of Higher Education, Linda Kerber, president of the Organization of American Historians, elaborated in some detail on what NEH funding cuts will mean for humanities teaching and research:

> The costs of scholarship, which 30 years ago were borne largely by colleges and universities in the form of sabbaticals and occasionally by private foundations, now are financed extensively by the N.E.H. In many institutions, faculty members receive research leaves only if they can win a grant from the N.E.H. or another outside source, which the administration then matches or 'tops off'. . . .
>
> We have come to rely on the N.E.H. not only to support research, but also to evaluate it. Administrators looking for indicators of quality, especially in fields outside their competence, have turned to the endowment for help. Over the last 30 years, the N.E.H. has constructed a peer-review system similar to those used by the National Science Foundation and the National Institutes of Health. It calls upon hundreds of scholars each year to serve on panels evaluating grant applications. These panels help college administrators assess the significance of research done by their faculty members by providing assurance that N.E.H. supported research has passed a strict and competitive review by nationally recognized leaders in a field. . . .
>
> Some critics of N.E.H. have suggested that private foundations might substitute for the endowments. That is not likely. Do we--faculty members and administrators alike--fully understand that a substantial proportion of the grants that we have been applying for from sources such as the

> American Council of Learned Societies, the National Humanities Center, the American Antiquarian Society, and others are actually regrants of N.E.H. money? . . .
>
> Another issue that we need to face is the impact that the N.E.H. has had on narrowing the gap between the amount and quality of research done at our elite institutions and that done at others. Within a single generation, N.E.H. grants have inspired many colleges and universities to raise their standards of scholarship and have enabled many faculty members to meet them.

Question 25. If further funding reductions are recommended, what programs would be eliminated?

Answer. In that case, we will assess our program structure in light of available resources and the tenets that have guided our restructuring efforts thus far. That is, out of any future appropriated sum we will first try to insure adequate support for those activities:

- that are best done a the national level,
- that have long-term impact,
- that have few other sources of support,
- that strengthen the institutional base of the humanities, and
- that reach broad sectors of the American public.

Question 26. The reauthorization bill in the House proposes to shift funding from national programs to the states. What is your view on this issue?

Answer. Unlike the state arts councils, state humanities councils are private, non-profit organizations. For most humanities councils, NEH funding is the primary source of support. The House reauthorization bill proposes immediately shifting most of the Endowment's functions and funding to the state councils, then phasing out federal funding altogether over a three-year period. Not the least of our problems with this scheme is that the councils' budgets would lurch skyward in year one, only to dwindle almost to nothing after year three. Of course, it will not surprise the subcommittee to learn that we do not favor phasing out NEH either; in fact, we are requesting an increased appropriation of $136 million in FY 1997.

In principle, it should be possible to devolve all or most NEH functions to the level of the state councils, since the councils and NEH are legislatively empowered to support much the same kinds of activities. But, we think the allocation of funds that we have requested in our FY 1997 budget submission to Congress represents a much more appropriate and efficient distribution of federal resources for the humanities among nationally and locally based programs. The Endowment and the councils are both very good at what they do, and to a large extent each complements the other. The Endowment draws upon the cultural resources of the entire nation. Whether local or national in scope, every project NEH supports is a winner in a fiercely rigorous grant competition to which scholars and educators in every part of the United States submit project proposals. These proposals are judged by approximately 1,000 of the applicants' professional peers sitting on review panels whose membership changes every year. The special strength of the state councils is local outreach. By working intensively with locally based organizations and groups--many not equipped to submit nationally competitive applications to NEH--the councils can carry humanities programs to audiences and communities that the Endowment might otherwise miss.

Although the functions of the Endowment and the councils are complementary, they are not interchangeable. The councils' first priority must be to serve local needs, and their efforts are necessarily limited by the cultural resources available within a single state. Consequently, no council or combination of councils is likely to provide major funding for costly, large-scale, or long-term projects whose benefits extend to the whole country--such projects, for example, as the NEH-supported television documentary series The Civil War, or The Great Depression; scholarly editions of the papers of Martin Luther King, Mark Twain, or George Washington; reference works that document ancient languages, such as The Sumerian Dictionary; or the NEH-supported collaboration among the Hoover Institution, the Research Libraries Group, and the Russian State Archival Service that is making the records of 2,500 Russian archival collections accessible to American scholars.

Question 27. What do you see as the appropriate level of funding to the states?

Answer. In FY 1997, we are requesting $30.15 million in definite funds for the state humanities councils. This is roughly 30 percent of NEH's budget--far more than the 20 percent prescribed in NEH's statute. In addition, we expect to allocate approximately $2 million in Treasury matching funds to the councils.

Question 28. If additional funding were provided to the states, how would it affect your ongoing programs?

Answer. In his testimony to the subcommittee, Chairman Hackney described at some length the effects that the severe budget reduction we sustained in FY 1996 have had on our ongoing programs. Indeed, a number of worthy programs can no longer be said to be "ongoing;" they have been discontinued because we simply lack the funds to do all that we once did, or even that we regard as necessary. It is because the effects on our regular programs of this year's budget cuts have been so unfortunate that we are requesting an increased (but still modest) appropriation of $136 million in FY 1997.

Fifty-six state humanities councils cannot do locally what NEH does at the national level. Were funding for the Endowment's regular programs curtailed still further in order to provide additional funding for the councils, the loss to the cultural and intellectual life of the nation would not be replaced by an expansion of state council programs.

Question 29. The FY 1996 conference report provides a new budget structure that would give NEH greater flexibility in allocating its funds. How has this improved your ability to deliver humanities programs?

Answer. Yes, the conference report's new budget structure for NEH--that is, the establishment of a general budget line for "Program Grants" rather than, as in past years, providing specific appropriations for our Research/Education and Public programs divisions--will give us greater flexibility in allocating funds in response to the ebb and flow of quality grant applications among these grant activities. This should help to reduce the likelihood that we would need to request authority to reprogram funds among our various budget lines. Such flexibility is particularly welcome during this year of significant changes in our programming and operations and the uncertainties and disruptions that typically accompany such alterations in long-standing procedures and practices. In this sense, the new budget breakdown provided by Congress should indeed improve our ability to "deliver" our grant programs.

Question 30. Does this new budget structure make your operation more efficient?

Question 31. Does this new budget structure provide you with a more rational approach for operating your programs given reduced funding levels?

Answer. In response to Questions 30 and 31, the funding flexibility provided by the new budget structure is helping us to operate our programs in a more efficient and rational way. As noted in the answer to the previous question, because of the extraordinary reduction in our funding for FY 1996 and the subsequent major restructuring of our grant programs, the new budget line-up provided by Congress allows us greater freedom to obligate funds responsibly among our various grant categories.

Question 32. How will the 1996 funding level impact your grant review process?

Answer. The FY 1996 funding cut will put a severe strain on our grant review system. Radically curtailed funding for NEH will mean, in effect, that fewer grants can be awarded than were awarded in previous years and that competition among grant proposals for scarce funds will thus intensify dramatically. This situation will put an immense burden on our reviewers and panelists who must now make very difficult informed judgments about the relative merits of grant proposals. Also, because we will be convening fewer panels, the level of disciplinary knowledge on a panel will be less "expert" and more "generalist" concerning the various subject areas of the applications under its purview.

In addition to forcing us to close down a number of programs and canceling or suspending competitions in several other grant categories, the FY 1996 funding reduction has also compelled us to rethink how applications to many of our remaining grant activities will be reviewed for funding. Because we are now "bundling" or grouping a number of disparate grant activities together within our review system, many projects in the humanities that are unlike in design, scope, and purpose will be competing directly against each other for severely reduced sums of program funds.

In our newly constituted Collaborative Research program in the Division of Research and Education Programs, for example, applications involving very different kinds of collaborative research projects in the humanities--such as scholarly editions of the papers of the nation's Presidents and other important historical and literary figures, archaeological research, humanities studies of science and technology, translations of foreign language texts into English, and scholarly conferences on significant topics in the humanities--will henceforth have to compete head-to-head against each other for funding. In the past, each of these fundamentally distinct kinds of research projects had been evaluated by reviewers and panels in separate grant-review competitions, that is: Applications were reviewed for funding only in relation to similar types of projects--editions projects competed only against other editions proposals, archaeology proposals competed only against other archaeology projects, etc. Under this new peer review arrangement, we are concerned that situations may arise where reviewers will be asked to provide advice to the Endowment about the relative merits of funding, say, an application to continue the Lincoln Legal Papers edition project, OR an application to write an important new biography on Lincoln, OR an application to mount a scholarly conference about our sixteenth-President.

The Endowment is committed, however, to maintaining the high quality of its peer review system. We have a well-earned reputation nationwide for operating a system of identifying grant proposals that are worthy of receiving federal funds that is deliberative, fair, and effective.

Question 33. How will the proposed 1996 funding level affect program accountability?

Answer. The reduction in funding is having little discernible impact on **project** accountability. NEH staff continue to monitor the progress of the grants we make, and we still require that our grantees submit reports to us periodically during the grant period and at the conclusion of their projects. The lowered funding level's effect on **program** accountability, however, is more substantial. This year we had hoped to begin the process of developing an annual evaluation plan for the agency, recognizing that the Endowment could benefit from having a more systematic approach to evaluation. We had also hoped to use this process to help us begin implementing the Government Performance and Results Act, whose provisions require a significant emphasis on evaluation. However, the reduction in our appropriation and the resulting reorganization of programs have led us to shelve temporarily our evaluation planning.

Question 34. There are some who would argue that the most important component of NEH's varied programs is its Preservation program. For example, you have noted that a significant part of the Nation's cultural legacy is at risk. How are these programs faring under the 1996 budget?

Answer. In a relative sense, our Preservation program fared well: The FY 1996 House-Senate Conference appropriations bill drastically reduced all NEH programs, but only the State Humanities Councils cut of 5 percent was lower than the 23 percent cut for Preservation.

The effects of the FY 1996 budget decrease on Preservation are still striking: Approximately 20,000 brittle books and 230,000 disintegrating pages of historically significant newspapers will not be microfilmed, materials that would have been preserved if our funding had remained at our FY 1995 level. In addition, 130,000 objects of archaeological, ethnographic, and historical importance to the nation will not be preserved.

While the Endowment's Preservation and Access grant activities are indeed important components of the agency's mission, we must stress that our other grant programs also address and meet critical needs and opportunities in the humanities such as improving humanities education, fostering scholarly research, and encouraging public participation and enjoyment of the humanities.

Question 35. Last year you indicated to the Committee that you were developing performance measures for your programs. What is the status of this effort?

Answer. This effort has been put on hold as we have struggled to cope with the downsizing and restructuring of the agency. We will resume work on the development of performance indicators after we have gained some experience with our newly defined programs. Only then will we feel sufficiently confident to engage in a systematic effort to measure the expected outcomes of these programs.

Question 36. How has the proposed 1996 funding level affected the development of these performance measures?

Answer. Please refer to the answer to the previous question.

Question 37. When can we expect to see the results of this performance measure effort?

Answer. We hope to resume work on this effort in the coming year. Developmental work on performance measures will proceed in tandem with a parallel effort to develop a strategic plan for the agency. Since that plan must be submitted by September of 1997, and since the development of performance measures is integrally tied to strategic planning, we anticipate that we will make considerable progress on the development of performance measures as work on the plan progresses over the next 18 months.

Question 38. What is the status of your National Conversation initiative?

Answer. The National Conversation initiative is now drawing to a close. We held the last of our Conversation-related grant competitions earlier this year, and the Endowment-wide portion of the initiative will conclude by the end of this year.

We have funded 75 Conversation-related projects in the two and a half years since we announced the initiative. These projects have supported conversations in more than 140 communities in 42 states, the Virgin Islands, and the District of Columbia.

Question 39. Given conference funding levels are you placing more emphasis on your key programs especially preservation, or will you continue to fund other programs like the National Conversation?

Answer. As indicated in our answer to the previous question, the National Conversation initiative is drawing to a close.

Consequently, this initiative will cost the agency relatively little in FY 1996. No other special initiatives are currently in the works.

In redesigning our programs to cope with the FY 1996 funding reductions, we have made sure that adequate support was made available for preservation activities. In fact, grant programs in our Division of Preservation and Access were cut by a smaller percentage than were programs in any of our other divisions. We hasten to add that we have also made sure that we channeled a critical mass of funding to the Endowment's other core emphases: supporting original scholarship, providing learning opportunities for the nation's teachers, and engaging the American public in the humanities.

QUESTIONS SUBMITTED BY REP. RALPH REGULA

Question 1. Let's have a conversation about your national conversations. I was skeptical about these last year and everything I have read about them has not lessened my concern. Last year you indicated you planned to report back to the public in some form in 18 months about what has been said in these conversations. If you were reporting today what would you tell the public about why their tax dollars should be spent on these conversations? What have we learned from them?

Answer. Newspaper coverage of conversations taking place has been highly favorable. In fact, we have put together a notebook of 153 such articles. We would like to submit several of these articles for the record because they will give the committee a broader picture of the nature of these conversations. [A selection of articles follows the answer to this question.]

The National Conversation is designed to help Americans grapple seriously with the meaning of American pluralism, and to do so in a manner that is informed by the insights and perspectives of the humanities. At a time when the nation is experiencing a rising tide of incivility, we think it is important to encourage thoughtful conversations among and between different ethnic, racial, and cultural groups in order to examine what unites us as a country and what we share as common American values. We think taxpayers would agree that in providing opportunities for citizens to engage in sustained conversations about questions that are at the heart of our democratic society, the Endowment is performing a valuable public service.

As for what we have learned from conversations we have funded, it is still early in the process and we don't yet have a clear picture of the themes that will emerge. (Only two National Conversation projects have been completed thus far.) Many conversations appear to be focusing on the diverse and often conflicting values that define the American Creed. As Americans we believe in freedom, individualism, and egalitarianism, yet in making a place for any one of these in our civic lives, we often bring one into conflict with another.

What we can tell you is that interest in the National Conversation has been overwhelming. To date, 1,500 conversations have taken place in 225 cities and towns in 41 states. This is an extraordinary response to a very small grant program. Conversation participants are eager to explore these themes as they are playing out in their communities and workplace. A common thread in all conversations is that participants are eager to meet again to continue to explore common ground.

Early this summer we will gather the directors of National Conversation projects to assess the initiative and to consider ways of continuing the Conversation without direct NEH support. We will then use the information gleaned at that meeting together with other evaluative material from funded conversations to prepare a report to the nation on the results of the National Conversation.

BEAUMONT (Texas) ENTERPRISE
December 6, 1993

It's time to come together

6298AA

Robert E. Thompson

COMMENTARY

WASHINGTON — "All of our people — left, right and center — have a responsibility to examine and discuss what unites us as a country, about what we share as common American values in a nation comprised of so many divergent groups and beliefs."

With those words, Sheldon Hackney defined an unusual project designed to infuse cohesion into a society that too often exalts its sense of diversity and pluralism over its sense of community.

Hackney, the newly-installed chairman of the National Endowment for the Humanities, has an acute awareness of the problem. Until he was nominated for his present post by Bill Clinton, he served as president of the University of Pennsylvania — a steaming cauldron of racial ferment and heated controversy over what conduct is and is not politically correct on a college campus.

In a recent speech before the National Press Club, Hackney explained that in a nation beset by cynicism, insecurity and alienation, it is imperative that Americans begin a dialogue on "the things that hold us together."

His view is similar to that expressed by Daniel J. Boorstin, the Pulitzer Prize-winning historian and former librarian of Congress, this past summer in an interview with Parade Magazine.

"The menace to America today is in the emphasis on what separates us rather than on what brings us together," said Boorstin, "the separations of race, of religious dogma, of religious practice, of origins, of language."

Boorstin added: "I'm wary of the emphasis on power rather than on a sense of community. The separate groups in our country are concerned about their power — whether it be black power or white power, the power of any particular group."

Hackney and Boorstin, both distinguished educators, are perturbed about what is happening to the soul of America. They are right. It is time for us to savor the remarkable accomplishments that have brought us to the threshold of the 21st century as the single greatest power on Earth and understand that future success depends to a large degree on our ability to work and achieve together.

In its preamble, the Constitution pledges that "we, the people" will "form a more perfect union," not build a more polarized society.

It is true, of course, that there never has been a time when Americans stood as one, united in spirit and purpose. We are by tradition an independent people who proudly flaunt our individuality.

But there have been times when a substantial majority of Americans could agree on a common purpose and common values. Those times usually occurred during a cataclysmic assault on the health and well-being of the republic by an enemy — whether in the form of a foreign power such as Nazi Germany, Imperial Japan or the Soviet Union, or economic disintegration as in the Great Depression or an overwhelming force of nature such as the floods that devastated the Mississippi and Missouri Valleys in 1993 and the hurricane that ripped through Florida and Louisiana in 1992.

Ever so fleetingly, we were brought together in common purpose to turn back Saddam Hussein's aggression in the Persian Gulf in 1991. But once that brief encounter was over, we returned to our old feuding ways.

Hackney believes the time has come for a series of electronic town meetings, which would permit Americans to talk to, rather than at, one another

"This is to be a national conversation open to all Americans, a conversation in which all voices need to be heard and in which we must grapple seriously with the meaning of American pluralism," said Hackney.

Boorstin believes there has been too much emphasis on the diversity of the American people.

"I think the notion of a hyphenated American is un-American," he said. "Polish-Americans, Italian-Americans or African-Americans are an emphasis that is not fertile. . . . I think it's time that we re-affirmed the fact that what has built our country is community and that community is not dependent on government. It's dependent on the willingness of people to build together."

Boorstin pointed out that American community-building is in sharp contrast with "the fanaticism and miseries of much of the rest of the world" — ethnic cleansing in Europe, tribal warfare in Africa and the oppressions of totalitarianism elsewhere.

"In that kind of world," said Boorstin, "community — an emphasis on what brings us together — is what I think is called for in our time."

Hackney and Boorstin have performed a service by arguing that the problem can begin to be corrected by focusing on those things that bring us together. In such a crusade — if it is taken seriously by the American people and their leaders — there could lie a rebirth of the spirit of national unity.

Robert Thompson is a columnist for the Hearst Newspapers.

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EDITORIALS

'National Conversation' grants show promise as money well-spent

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EDITORIAL

Many Americans are too busy shouting at each other about issues that split them apart, like abortion, race relations, immigration, liberal-vs.-conservative politics and Rush Limbaugh.

These drive-by debates polarize people into "I'm right, you're wrong" positions that inhibit cooperation and problem solving. They also prevent people from talking and listening to each other about issues that should bring them together.

In a laudable effort to replace argument with civil discourse, the National Endowment for the Humanities (NEH) has put up $1.6 million in federal funds to encourage all Americans to take part in a "National Conversation."

The first round of grants went to agencies in 13 states, not including Florida. A second round will be awarded in May. Local volunteer fund-raisers will finance part of the costs. This all has the promise of becoming money well spent.

The goal is to finance innovative ways to get ordinary people involved in talking and thinking together about America, what makes it special and what shared qualities Americans from diverse cultures and ways of life can use to unite as a nation.

The need for unity and shared values is increasing. The world is plagued with bloody violence linked to racial, ethnic, national, religious, language and cultural differences. America is beset by pessimism, cynicism, insecurity and alienation.

Ways of using the money will include:

- NEH is providing lists of books, videotapes and "conversation starter" kits to help people conduct their own National Conversation.
- $49,000 is going to the Missouri Humanities Council to pay scholars to impersonate historical figures and discuss their views, often in their own words.
- $95,000 to the Great Books Foundation of Chicago for 250 discussions in major cities on July 8, linked nationwide by cable TV.
- $60,000 to the Colorado Endowment for the Humanities to host community discussions on identity, family, community, the land and the American dream.
- $19,800 to Philadelphia's Institute for the Study of Civic Values to hold forums and Internet computer discussions of America's founding values and their relevance today.
- $220,000 to Brown University for library reading programs on "What Is America and What Do We Want It to Be?"

That question is far more important than most of the issues people are arguing about today. Stop shouting and join the National Conversation; you might learn something that could change your life and your country for the better.

WHAT TO DO

For further information about the National Conversation, call 1-800-634-1121 or write the National Endowment for the Humanities, 1100 Pennsylvania Ave N.W., Room 407, Washington, D.C. 20506.

Tulsa (OK) World
June 6, 1995

An Important Difference Between Conversation, Talk

POINT OF VIEW

■

By
Cherie
Hughes

The National Endowment for the Humanities will come before Congress in the fall for its reauthorization. Many of the Endowment's critics maintain that its initiative to encourage a National Conversation on American Pluralism and Identity demonstrates why the NEH should be abolished. They claim that it is a frivolous waste of taxpayers' money to bring Americans together to "talk" about such things. To them, there is too much talk already polluting the country. Such an assertion indicates an elitism and a basic lack of understanding of both the National Conversation and the role of the NEH.

That the Conversation is being attacked from both the right and the left ought to make those of us in the middle take notice. Our friends on the right fear more celebrations of multiculturalism and a destructive, Balkanizing diversity. Our friends on the left fear a glossing over of our differences and the celebration of a false and oppressive unity.

Both sides think there has been enough talk. Indeed, there is a lot of talk — talk radio and talk TV fill the airways. But that is exactly the point. People are talking at one another, not with one another. In fact, people are shouting, hitting, shooting, and bombing one another, so concerned are they to make their points known. Much of violence is inarticulate rage turned outward. Mere "talk" will not palliate violence, and the National Conversation will not deter lunatics. Talk, however, is not conversation.

One hears of the "art of conversation," but never of the "art of talk." Conversation implies rules of rationality and civility that do not characterize talk. Rooted in the Latin, "conversation" means to turn together, presumably so as to be going in the same direction. Mataigne says that the art of conversation requires a willingness to be open to the experiences, ideas, and arguments of another.

That is what the National Conversation modestly hopes to accomplish — to bring together Americans to explore our common values and to appreciate our differences. Where there is one land with many peoples, our goals ought to be similar to St. Augustine's: in necessary things, unity; in doubtful things, liberty; in all things, charity. To get there we need to converse.

One way to converse is to follow the initiative of the National Endowment for the Humanities. Its "kit" for the National Conversation provides practical suggestions for getting people together and getting them started. But, the NEH's Conversation kit is only a guide; it does not prescribe any desired outcome: it merely indicates points of departure for discussions of American diversity and identity. To ridicule the Kit as some critics do is to shift the grounds of the argument away from the importance of the citizen's right and duty to engage in a civic discourse that need not entail civic discord.

Only the privileged few now have regular access to the nation's media to make known their views. At the other end of the spectrum are those on the fringe who by their actions and convictions have excluded themselves from the body politic. In ancient Greece those who took no part in the life of the city-state were called "idiots." We can only concur.

Meanwhile, the rest of us rely on libraries, churches, schools and other organizations to provide us with a common meeting ground where important topics can be discussed. It is only through true conversations that some productive sanity and civility can be introduced into all of our talk on what it means to be an American in the late 20th century.

The NEH is the perfect tool to have launched the National Conversation. Without the NEH, the benefits of such humanities programming would be restricted to those with privileged access, and the voices of the rest would never be heard. Those of us in the middle should participate in the National Conversation and support the National Endowment for the Humanities.

Cherie Hughes is an assistant professor of humanities at Tulsa Junior College.

ANCHORAGE DAILY NEWS TUESDAY, March 5, 1996

FORUM / LETTERS

Talk is cheap, but 'Talking Anchorage' priceless

By RICHARD GOLDSTEIN

COMPASS
POINTS OF VIEW FROM OUR COMMUNITY

Yeah, yeah. Talk is cheap, and we all know it. You watch Geraldo today? Yakkity yak. Cheap and getting cheaper every minute. Listen to Howard Stern or G. Gordon Liddy? Blah, blah. Read that story in the National Enquirer about aliens who sell marshmallows on the Eiffel Tower? Talk about riveting reading!

So where do Americans turn these days to find dialogue that matters?

Well, last summer, they turned back the clock — to a re-creation of the 1858 Illinois senatorial debates between candidates Abraham Lincoln and Stephen Douglas. For those debates, Americans came from miles around, by horse and cart, to listen to two of the greatest speakers of the day discuss the burning issue of their era, slavery. Last summer's re-creations also drew large crowds of interested citizens, anxious to hear, if only secondhand, the fabulous oratory that graced those original debates.

This is a hopeful sign, leading me to believe that the desire among some Americans for an honest and open discussion of the burning issues of our day may still be alive and well, no less in Anchorage than in Lincoln-Douglas country.

Here in Anchorage, we absolutely need to do better than the lip service paid to the idea of public input provided by the School Board and the Assembly. (You get your three minutes and then you get the hook!) So how about a series of free, open, public workshops on the nitty-gritty, gut-check issues now confronting Anchorage: community, education, the place of religion in society, extremism, the role of government, the law and race relations.

Well . . . it just so happens, that . . . during the five weeks from Sunday through April 14, there will be such a program — a series of 40 free public workshops, called "Talking Anchorage."

They are being sponsored by the Alaska Humanities Forum and will take place, literally, all over town — in churches and schools, at the museum and the Loussac, on the base at Elmendorf, at UAA and at many of your favorite coffee houses.

The funding agency for "Talking Anchorage" is the National Endowment for the Humanities' special program, "The National Conversation on American Pluralism and Identity," whose purpose is to create forums, all over the country, where the public can come and discourse, freely and at length, on the nature of our American society.

To help with "Talking Anchorage," we've invited some of the nation's pre-eminent community-oriented thinkers and organizers. They'll come to town not to tell us how it's done in the Lower 48, but rather to lend insight and breadth to our conversation as we talk about the issues that concern us the most.

Three outstanding guests will book-end our five weeks of workshops. "Talking Anchorage" will begin on Sunday at Cyrano's Playhouse with a forum on the roots of American democracy. Our guest facilitators for the opener will be Bill Barker, who portrays Thomas Jefferson at Colonial Williamsburg in Virginia, and Dr. Walter Zelman, the former director of Common Cause in California and, more recently, a senior health care policy adviser to Hillary Rodham Clinton.

We'll ask our participants to think about the Founding Fathers' dream of democracy and contrast that with the reality of democracy, as it works (or doesn't work) in Washington, D.C., and in Anchorage 200 years later.

Five weeks after that, Ray Suarez, host of "Talk of the Nation," a daily, two-hour National Public Radio program, will be in Anchorage to help us sum up what we've learned during the previous workshops and listen to us as we plan for our town's future.

And in the middle, there are more than a dozen other guests who will help facilitate your conversations on a whole range of topics dealing with the Anchorage version of what passes for American society, 1996.

All events are free and open to the public, but require pre-registration by phone or in person at the Alaska Humanities Forum, at 421 W. First Ave. (second floor of the old Alaska Railroad Building), or by calling 272-5341.

The public will also be asked to do a few pages of directed reading before each event. Reading materials can be picked up at the venue in which the workshop is scheduled, two weeks before the workshop.

A complete schedule of all of these forums, including four call-ins on KSKA and four live-broadcast Channel 42 television workshops, is available at the Loussac Library, the Anchorage Museum of History and Art, Kaladi Bros., Cafe Del Mundo, Borders Books, Cyrano's and L'Aroma.

Schedules are also available at Central Lutheran, Abbott Loop Community and Immanuel Presbyterian churches, at the Baha'i Community Center and at the Alaska Humanities Forum office. A schedule was printed in Sunday's Anchorage Daily News. A daily workshop update can be heard on the Daily News' "Daily Newsline" by calling 257-1500 and then access code 1995.

Help out! Get involved! Bring back conversation!

☐ Richard Goldstein is the coordinator of "Talking Anchorage," and was the creator and coordinator of "Anne Frank in the World," voted the best National Endowment for the Humanities project in the country in 1994.

Question 2. How much as been spent on the "National Conversations" and do you propose to continue these given your reduced budget?

Answer. The National Conversation initiative will draw to a close by the end of this year. To date, we have spent $1.8 million for 38 projects funded through a special grant competition. Also, we have supported the development of a film on the National Conversation and have provided money to the State Humanities Councils, which they used to support locally initiated National Conversation projects in their states.

Question 3. Given the budget cuts how have you scaled back your 1996 program and what plans have you made to phase out the NEH?

Answer. In place of the six divisions and 31 programs that existed a year ago, a scaled back and restructured Endowment now comprises three divisions and nine programs. Five programs have been discontinued: Dissertation Grants, Study Grants, Travel to Collections, Younger Scholars, and Publications. This year's grant competitions have been suspended or canceled in several other categories, including support for archaeological research, undergraduate curriculum development, school and college collaboratives, humanities studies of science and technology, and translations of foreign language texts into English. The remaining categories have, in general, been bundled together to share much diminished program budgets, with the result that widely disparate groupings of applicants now compete jointly for less money. And, through RIFs and attrition, the Endowment's staff has dropped 38 percent in one year.

Even before the subcommittee began to consider dramatic reductions in the Endowment's budget, this agency was aggressively implementing administrative efficiencies in conjunction with the government-wide reinvention effort and exploring innovative synergies with outside funders and program providers. Obviously, the scope and suddenness of the budget cut we sustained this year have only intensified our search for ways to use available resources in the most effective way possible. Already, we have in place a drastically streamlined administrative structure and are in the process of launching an "Enterprise" program that we hope will significantly amplify the resonance of what we do, enabling us to reach more Americans with each tax dollar.

Still, program delivery at $110 million cannot be what it was at $172 million. In FY 1996:

-- Summer seminars and institutes for school teachers and college faculty will be reduced by 30 percent. As a result, 600 fewer educators will be able to spend 4-8 weeks studying the subjects they teach under the guidance of some of the nation's leading scholars, and the 100,000 students these teachers see each year will lose the benefit of instruction grounded in recent academic training.

-- No new projects to publish authoritative texts of such source documents as the papers of American presidents will be funded, and as many as 30 percent of the long-term documentary editions projects currently in progress may be denied continued funding. Nor will we support any new projects to create dictionaries, atlases, encyclopedias, and other reference works. English translations of foreign-language works, much used in undergraduate courses, are not being funded at all.

-- 20,000 brittle books and 230,000 disintegrating pages of historical newspapers will not be preserved on microfilm; 130,000 museum objects will not get needed conservation treatment.

-- Half as many museum exhibitions will be supported. Sharply curtailed funding for documentary films will mean that two or three years from now opportunities for wholesome, intelligent television viewing will be considerably fewer and the ranks of the kinds of emerging documentarians who get their start as a result of an NEH grant, the Ken Burnses of tomorrow, may be thinner.

-- Over $20 million in non-federal contributions to humanities institutions will probably not be made because of cuts in the NEH Challenge Grants program.

During the past year, we have been preparing for the likelihood of a major funding reduction in FY 1996 by undertaking an orderly transition to a smaller and restructured NEH, one capable of finding creative ways to involve new funding partners and to amplify the beneficial "echo" of the projects we do support. Rather than planning to shut down, we have been working to keep alive, to the greatest extent possible, the Endowment's historic mission of advancing education, research, preservation, and public programming in the humanities.

We do not believe it is possible for the Endowment to develop a phase-out strategy that generates private support sufficient both: 1) to guarantee adequate funding for the NEH in the absence of a sizeable federal appropriation, and 2) to avoid creating an unequal fund-raising competition between NEH and private cultural institutions.

Overwhelmingly, the fund-raising experts and cultural institution heads we consult have been telling us that private contributors cannot, in addition to what they already do for the humanities, annually fill a funding gap equivalent to the Endowment's budget. If anything, humanities contributions may actually be less forthcoming in the future, as reductions in government spending for social programs cause foundations and corporations to redirect their giving toward pressing societal needs. Establishing a permanent endowment fund for NEH does not look very promising either; approximately $3 billion would be needed to generate annual investment income equal to our FY 1997 budget request of $136 million. None of the major private universities--institutions that dwarf the size and budget of the Endowment--has attempted fund-raising on this scale.

Question 4. Last year you indicated that you believe there was a necessary federal role in the promotion of the humanities in America. If as the House has indicated it wishes and the NEH is phased out what do you envision happening to the humanities in America? Will the private sector, the states, the schools or foundations pick up the slack?

Answer. Were there no National Endowment for the Humanities, some of the nation's cultural institutions--its colleges, universities, museums, libraries, and public television stations--would continue to undertake activities related to the humanities but at a significantly reduced level. Gone, would be the nation's largest source of outside funding for humanities institutions and a unique system for recognizing and encouraging nationally outstanding scholarship and teaching in history, literature, philosophy, and other humanities disciplines.

Most humanities institutions that receive NEH support rely on a variety of funding sources. For them, cuts in NEH funding greatly shrink their resources and possibilities for cultural programming but do not necessarily imperil their institution's continued existence. Other humanities institutions--such as the state humanities councils, the independent film companies that produce historically rigorous documentaries for television, many long-term academic research projects, and much of the national effort to preserve brittle books and documents--have relatively few sources of support other than the Endowment. For them, eliminating NEH would mean an immediate falloff in the quantity - and quality of what they can do, or that they cease operating altogether.

Overwhelmingly, the fund-raising experts and cultural institution heads we consult have been telling us that private contributors cannot, in addition to what they already do for the humanities, annually fill a funding gap equivalent to the Endowment's budget. If anything, humanities contributions may actually be less forthcoming in the future, as reductions in government spending for social programs cause foundations and corporations to redirect their giving toward pressing societal needs. Establishing a permanent endowment fund for NEH does not look very promising either; approximately $3 billion would be needed to generate annual investment income equal to our FY 1997 budget request of $136 million. None of the major private universities--institutions that dwarf the size and budget of the Endowment--has attempted fund-raising on this scale.

Question 5. Without the federal funding what do you anticipate happening to the state humanities councils?

Answer. Nina Cobb, author of the recent Rockefeller Foundation/Texaco Foundation report, Looking Ahead: Private Sector Giving to the Arts and the Humanities, calculates that in FY 1995 the budget of the average state humanities council totalled $777,056, of which 76 percent came from NEH outright and matching awards, 7 percent from state government appropriations, and 14 percent from private sources. Although the Endowment's authorizing legislation requires that each federal dollar expended by the state councils be matched by an at-least-equal amount of cash or in-kind contributions, most of these nonfederal funds are received by the local organizations that present council-funded projects, not by the council itself. The circumstances of individual state humanities councils vary widely; but, plainly, most would immediately go out of existence were federal funding to end.

By way of contrast, the state arts councils are far less directly dependent on their federal funding ($31 million in FY 1995). State and local government support for these organizations far exceeds what their state humanities counterparts receive. Again, according to Nina Cobb:

> The intergovernmental system for the arts includes 50 state arts councils and 6 special jurisdictions, 6 regional arts organizations, and 3,800 local and community arts organizations. Altogether, intergovernmental funding for the arts is close to $1.1 billion for 1995--with state appropriations of $259.5 million and local governments contributing $650 million. The state and local numbers include direct funding to cultural institutions as well as to state and local arts councils.

QUESTIONS SUBMITTED BY REP. SIDNEY R. YATES

Question 1. Will you explain to me why the Administration's FY 97 request for NEH is so much lower than the FY 96 request? Doesn't the Administration still believe that NEH does important work?

Answer. The Endowment and the Administration are alert to the need for all federal agencies to help shoulder some of the responsibility for reducing federal spending. The NEH request of $136 millon for FY 1997 thus represents a responsible trimming of our budget that acknowledges the extraordinary pressures the federal government faces in trying to balance the goal of reducing the financial burden on taxpayers with the necessity of maintaining an adequate level of services for the American people. A budget of $136 million is a "realistic" level of funding to request for NEH during this era of federal downsizing and is an amount that should elicit serious consideration from the Congress.

We would also point out, however, that the FY 1997 request, should it be enacted, would mark an important increase in funding over the FY 1996 level set for us by the House-Senate Conference Committee. A budget of $136 million would help us recover at least a portion of the ground we are losing in FY 1996 in our capacity to support significant education, research, and public humanities projects and programs for the American people. The FY 1997 NEH budget request thus clearly demonstrates the Administration's understanding of the needs of the humanities, an appreciation of how the humanities contribute to the spirit and life of the nation, and confidence in the Endowment's ability to serve as an effective means for fulfilling this important national mission.

Question 2. How much are you requesting in FY 97 for the Preservation program at NEH?

Answer. The Endowment's FY 1997 requested budget allocation for the Division of Preservation and Access is $21 million.

Question 3. How are the cuts in your FY 96 budget impacting the Humanities throughout the country? Who will be hardest hit by these cuts? What have these cuts done to your brittle books program?

Answer. No area of the country and no facet of the humanities will be unscathed by the FY 1996 reduction in NEH's budget. Although we do not yet have cumulative data on the full impact of the reduction, the FY 1996 budget cuts can be expected to have both immediate and long-term consequences for the cultural and educational life of the country. Because we will be making significantly fewer awards this year, the immediate effect of the funding reduction will be a steep decline in the number of quality humanities projects and programs that are available for the American people. We anticipate, for instance, that as many as 30 percent of projects to compile editions of the papers of important historical figures that we are presently supporting will not receive continued funding in FY 1996, including some U.S. Presidential papers projects.

Insufficient funds in FY 1996 also means that we will be funding less than half the number of humanities film projects and museum exhibitions as we had been supporting in previous years and that a major cutback also will be made in our grants to public libraries to conduct reading and discussion programs in the humanities for out-of-school citizens. In our Challenge Grants program, the lower FY 1996 budget will result in NEH's inability to "leverage" as much as $20.6 million in new or increased gifts to humanities organizations and institutions across the country. And, the smaller and fewer grants we will award through our Preservation and Access division this year will mean that as many as 20,000 seriously endangered brittle books will not be microfilmed and thus saved for posterity.

The FY 1996 cuts also will have a broad and long-term impact due to the "multiplier" or "ripple" effect of our grants. An example of the "ripple" effect of the reductions can be seen in our summer seminars and institutes for college and school teachers programs. Since we are forced to scale back the number of grants in these programs, for example, 600 fewer teachers will attend seminars and institutes supported with FY 1996 money than were able to participate in seminars and institutes supported with FY 1995 funds. The real "impact" of this loss, however, is the 100,000 students who would have received better instruction in their humanities courses because they were taught by teachers who have been intellectually invigorated after participating in an NEH-supported institute or seminar.

Individual NEH fellowships and other research projects also have a wide and long-term effect: The scholar who wins one of our fellowship grants is not the one who really "benefits" from the grant. Rather, this research is usually published as a book or article and made available for use by generations of other scholars, teachers, and students. Thus, we may not be able to know for decades the full effect of the reduced number of scholarly projects in the humanities we will be able to support in FY 1996.

Finally, the FY 1996 funding reduction also can be expected to have a pronounced negative "ripple" effect on the availability of quality public programming in the humanities in the United States. Many of our public programs grants go to institutions and organizations that, while they may be based in large cities or populous states, often sponsor humanities projects that reach throughout the country. Prior to this year, for example, NEH-supported reading and discussion programs in the humanities took place in more than 400 libraries in forty-four states and the District of Columbia and our grants for museum exhibitions in the humanities typically traveled to more than 250 other sites.

Question 4. Do you know if private contributions to the Humanities have been able to make up for the reduced federal assistance?

Answer. We do not yet know whether or not private contributions have been able to make up for the cuts in the Endowment's budget, as the impact of the cuts is only now being felt. But we have serious doubts about the private sector's capacity or willingness to fill the void. Overwhelmingly, the fund-raising experts and cultural institution heads we consult have been telling us that private contributors cannot, in addition to what they already do for the humanities, annually fill a funding gap equivalent to the Endowment's budget. If anything, humanities contributions may actually be less forthcoming in the future, as reductions in government spending for social programs cause foundations and corporations to redirect their giving toward pressing societal needs.

Question 5. The Republicans on the House Authorizing Committee and some members of this committee believe the NEH should be phased-out by September 30, 1998. Has the Administration taken a position on this?

Answer. In the message he sent to Congress explaining his veto of H.R. 1977, the "Department of the Interior and Related Agencies Appropriations Act, 1996," President Clinton wrote, "Finally, the bill represents a dramatic departure from our commitment to support for the arts and humanities. It cuts funding of the National Endowments for the Arts and Humanities so deeply as to jeopardize their capacity to keep providing the cultural, educational, and artistic programs that enrich America's communities large and small."

Confronted with a dramatic reduction in our budget in FY 1996, the Endowment has been conducting an orderly transition to a scaled back and restructured agency. In place of the six divisions and 31 programs that existed a year ago, a scaled back and restructured Endowment now comprises three divisions and nine programs. Five programs have been discontinued: Dissertation Grants, Study Grants, Travel to Collections, Younger Scholars, and Publications. This year's grant competitions have been suspended or canceled in several other categories, including support for archaeological research, undergraduate curriculum development, school and college collaboratives, humanities studies of science and technology, and translations of foreign language texts into English. The remaining categories have, in general, been bundled together to share much diminished program budgets, with the result that widely disparate groupings of applicants now compete jointly for less money. And, through RIFs and attrition, the Endowment's staff has dropped 38 percent in one year.

In FY 1997, the Administration is proposing an increased NEH budget of $136 million. Our plan is not to shut down but to keep alive--to the greatest extent possible--the Endowment's historic mission of advancing education, research, preservation, and public programming in the humanities throughout the nation.

Question. Is NEH preparing for a phase-out?

Answer. We do not believe it is possible for the Endowment to develop a two-year phase-out strategy that generates private support sufficient both: 1) to guarantee adequate funding for the NEH in the absence of a sizeable federal appropriation, and 2) to avoid creating an unequal fund-raising competition between NEH and private cultural institutions.

Overwhelmingly, the fund-raising experts and cultural institution heads we consult have been telling us that private contributors cannot, in addition to what they already do for the humanities, annually fill a funding gap equivalent to the Endowment's budget. If anything, humanities contributions may actually be less forthcoming in the future, as reductions in government spending for social programs cause foundations and corporations to redirect their giving toward pressing societal needs. Establishing a permanent endowment fund for NEH does not look very promising either; approximately $3 billion would be needed to generate annual investment income equal to our FY 1997 budget request of $136 million. None of the major private universities--institutions that dwarf the size and budget of the Endowment--has attempted fund-raising on this scale.

Question. Wouldn't eliminating NEH devastate the Humanities in America?

Answer. Precisely. NEH's elimination would have an absolutely devastating impact on Humanities in America, particularly in rural areas, in small towns, and in economically disadvantaged urban areas. What would be hardest hit would be access to the humanities by all Americans, regardless of where they live or their means.

Last June, in a presentation to the President's Committee on the Arts and Humanities, Alberta Arthurs of the Rockefeller Foundation described some of the findings of a now published study of private sector support for the arts and humanities (Nina Kressner Cobb, Looking Ahead, Private Sector Giving in the Arts and Humanities, funded by the Rockefeller Foundation in conjunction with a grant from the Texaco Foundation.) After noting that "[t]he NEH is the single most important donor agency for the humanities in the country, providing almost twice as much in funding for the humanities as do the private sector donors...," she went on to say:

> We have interviewed about forty private sector donors in private, corporate, family and community foundations, asking a set of questions about their funding habits, the future of funding as they see it, their relationships to each other, to the public sector. Because there has been voiced an expectation that arts and humanities funding can be "privatized," that the private sector can "fill the gap" if public support diminishes, we were specific in asking these donors how cut-backs in federal and state funding would affect their funding.
>
> Every donor except one reported that their foundations are not in a position to increase their culture portfolios.

Most humanities institutions that receive NEH support rely on a variety of funding sources. For them, cuts in NEH funding shrink their resources and possibilities for cultural programming but do not necessarily imperil their institution's continued existence. Other humanities institutions--such as the state humanities councils, the independent film companies that produce historically rigorous documentaries for television, many long-term academic research projects, and much of the national effort to preserve brittle books and documents--have relatively few sources of support other than the Endowment. For them, eliminating NEH would mean an immediate falloff in the quantity and quality of what they can do, or that they cease operating altogether.

Last January, speaking on behalf of the New Hampshire-based Bipartisan Campaign for Arts and Humanities, film documentarian Ken Burns assessed the likely consequences for the average citizen of a federal withdrawal from cultural sponsorship:

> There are those who are sure that without the Endowments, the so-called "marketplace" would take care of everything; that what won't survive in the marketplace doesn't deserve to survive. Nothing could be further from the truth...
>
> The marketplace does not save the old papers of a founding father, it doesn't fund research into that which enriches our heritage--not necessarily our pocketbooks or what is fashionable at the moment, and it does not fund the local poetry reading, or dance recital, or symphony group, or lecture on great books that take place daily from Maine to California.

Writing in The Chronicle of Higher Education, Linda Kerber, president of the Organization of American Historians, elaborated in some detail on what NEH funding cuts will mean for humanities teaching and research:

> The costs of scholarship, which 30 years ago were borne largely by colleges and universities in the form of sabbaticals and occasionally by private foundations, now are financed extensively by the N.E.H. In many institutions, faculty members receive research leaves only if they can win a grant from the N.E.H. or another outside source, which the administration then matches or 'tops off'. . . .
>
> We have come to rely on the N.E.H. not only to support research, but also to evaluate it. Administrators looking for indicators of quality, especially in fields outside their competence, have turned to the endowment for help. Over the last 30 years, the N.E.H. has constructed a peer-review system similar to those used by the National Science Foundation and the National Institutes of Health. It calls upon hundreds of scholars each year to serve on panels evaluating grant applications. These panels help college administrators assess the significance of research done by their faculty members by providing assurance that N.E.H. supported research has passed a strict and competitive review by nationally recognized leaders in a field. . . .
>
> Some critics of N.E.H. have suggested that private foundations might substitute for the endowments. That is not likely. Do we--faculty members and administrators alike--fully understand that a substantial proportion of the grants that we have been applying for from sources such as the American Council of Learned Societies, the National Humanities Center, the American Antiquarian Society, and others are actually regrants of N.E.H. money? . . .
>
> Another issue that we need to face is the impact that the N.E.H. has had on narrowing the gap between the amount and quality of research done at our elite institutions and that done at others. Within a single generation, N.E.H. grants have inspired many colleges and universities to raise their standards of scholarship and have enabled many faculty members to meet them.

Question 6. What programs have you had to eliminate as a result of the FY 96 cuts? What criteria did you use to decide which programs would be eliminated and which would survive?

Answer. As a result of the FY 1996 conference funding level, the Endowment eliminated several grant programs entirely, including Dissertation Grants (a program of grants to Ph.D. students in the humanities to complete work on their doctoral dissertations); Study Grants for College Teachers (a program of short-term grants to college teachers with heavy teaching responsibilities to conduct independent study on important topics in the humanities); Publications (a program of small subvention grants to help non-profit presses publish and disseminate works of scholarly distinction in the humanities); and Younger Scholars (a program that provided grants to high school and college students to spend the summer studying and writing about an important topic in the humanities).

In addition, many other NEH grant opportunities--including, for example, our support for archaeological research, research conferences, undergraduate curriculum development, collaborative education projects between high schools and colleges, humanities studies of science and technology, translations into English of important foreign language texts in the humanities, and summer stipends for humanities scholars--had to cancel or suspend their grant competitions for the current fiscal year.

In making these and other decisions about how to restructure NEH, we decided that the Endowment should concentrate its limited resources on supporting activities in the humanities that are best done at the national level, that have long-term impact, that have few other sources of support, that strengthen the institutional base of the humanities, and that reach broad sectors of the American public.

Question 7. How many RIFs have you had? What percentage is this of your total workforce? How has this impacted your ability to carry out the mission of NEH?

Answer. In December 1995 the Endowment conducted a reduction-in-force (RIF) that resulted in the release of 53 employees, a 24 percent decrease in our total on-board staff at that time. We also reduced our number of positions--filled and unfilled--from 276 to 170, a decrease of 38 percent. These staffing cuts were necessary because of the drastic funding decreases included in the House and Senate versions of NEH's FY 1996 appropriation bill.

The Endowment's management began planning for the reduction in staff and funds midway through FY 1995 when it became clear that a sizable reduction in funding in FY 1996 was likely. A comprehensive review of our organizational and program structures was undertaken to determine how our diminished FY 1996 funding and staffing resources could be used in the most effective and efficient manner.

Following that review, the number of programs was reduced from 31 in FY 1995 to just 9 in FY 1996. Similarly, the Endowment previously administered its programs through 6 divisions; we now have 3 divisions. Our administrative resources--funding and staff--are severely stretched under the new structure.

Question 8. I'm told NEH is planning to cut program grants by 53 percent and preservation grants by 23 percent in FY 96. At the same time, grants to the State Humanities Councils will only be cut by 5 percent. Why is there such a disparity here?

Answer. In FY 1996, the Endowment has allocated funding totalling $110 million among the Federal/State Partnership, Preservation and Access, and the other major program categories and administration in the amounts specified by the House-Senate Appropriations Conference Committee. The FY 1996 appropriation request that we submitted to Congress totalled $182 million and did not entail dramatic funding disparities.

Question. Why aren't the state councils being subjected to the same type of cuts?

Answer. Although the level of state council funding in FY 1996 is that specified by the Conference Committee, it bears noting that, among the many kinds of cultural organizations that receive NEH support, the state councils are by far the least able to absorb large funding cuts. Unlike other cultural organizations, which receive NEH grants on a occasional basis for ad hoc projects, the councils are universally dependent upon an annual NEH grant for general operating support. The state councils vary widely in their ability to attract private and state government funding. Few councils, however, would be able to absorb an abrupt reduction of 20-50 percent in their NEH grant without severely curtaining their activities.

Question 9. How many grants do you expect to make in FY 96?

Answer. We expect to make approximately 560 grants in the current fiscal year.

Question. How does this compare with FY 95?

Answer. In FY 1995, we awarded 1,505 grants.

Question. What percentage of applicants actually receive grants?

Answer. In FY 1996, we expect to award grants to approximately 17 percent of our applicants.

Question. How does this ratio compare with prior years?

Answer. In FY 1995, the percentage of funded applicants was 18.1, the lowest in the 15 years for which we have application statistics. As recently as FY 1989, approximately 25 percent of our applicants received a grant.

Question 10. What will the impact be if your appropriation for FY 97 turns out to be less than your FY 96 budget of $110 million?

Answer. If NEH were to receive an FY 1997 appropriation that is below the austere current budget level of $110 million, such an event would deepen the widespread negative impact on the nation's cultural and educational life, described in the answer to the previous question, that is resulting from the FY 1996 Draconian cut in our funding. Another budget reduction for NEH essentially would require us to implement once again some of the "downsizing" actions we were forced to undertake in response to the FY 1996 radical funding cuts including, the elimination of additional NEH grant programs, the suspension or outright cancellation of many of our remaining grant activities, a significant scaling back of both the number and size of the grants we are able to make, and the termination of more NEH employees. In short, a continued freefall in our budget would call into question the Endowment's ability to continue fulfilling its historical mission of providing a critical mass of high quality projects and programs in the humanities for the American people.

ADDITIONAL QUESTIONS FOR THE RECORD
SUBMITTED BY REP. SIDNEY R. YATES

Question 1. Under the budget of $110,000,000 for FY 97, what would the impact be on the National Heritage Preservation Program. How would that program be impacted if your FY 97 budget were only $90,000,000?

Answer. If the Endowment were held to a budget of $110 million again in FY 1997, the impact on our National Heritage Preservation (NHP) program would be comparable to the effect of the FY 1996 budget cut; that is, when measured against the funding received for the program in FY 1995, fewer grants awarded in the NHP program will mean that 130,000 fragile objects of archaeological, ethnographic, and historical importance held in the nation's museums will not receive proper preservation treatment and handling.

A budget of $90 million in FY 1997 would be yet another devastating blow to the agency's ability to continue fulfilling its mission of providing the American people with wide opportunities to explore human history and culture through the humanities. At an agency budget of $90 million, the National Heritage Preservation program, as well as most if not all other NEH grant programs, would need to make additional, dramatic cuts in its level of grants. The Endowment also would be forced to close down a number of other important grant activities on top of those we had to terminate in FY 1996.

NATIONAL GALLERY OF ART

Statement by Mr. Earl A. Powell III, Director of the National Gallery of Art, to a Subcommittee of the Committee on Appropriations, United States House of Representatives, March 26, 1996

The mission of the National Gallery of Art is to serve the country by preserving, collecting, exhibiting, and encouraging the understanding of works of art by the American public at an exemplary level. In order to maintain the very highest standards, over the years the Gallery has consistently hired and retained the best available curatorial, educational, and management staffs. Day-to-day operations support our mission through the care, maintenance, and security of the works of art and the facilities.

Our FY 1997 request focuses on two basic areas: continued funding at the present no-growth level for our day-to-day operations and special exhibitions program, plus the repair, restoration, and renovation of the Gallery's two architecturally significant buildings.

The National Gallery's federal funds budget request for the fiscal year 1997 is $59,841,000 compared to the 1996 budget of $58,286,000. Total mandatory/uncontrollable increases of $3,156,000 are offset by programmatic decreases of $1,601,000 for a net increase in our request of $1,555,000.

Comprising the mandatory/total uncontrollable increases are: personnel compensation and benefits -- $2,761,000 to cover mandatory/uncontrollable pay increases such as the proposed FY 1997 pay raise and the annualized cost of prior years locality and national pay raises; and rents, communications and utilities -- $395,000 to cover the increased costs of water and sewer being charged us by the Department of Treasury and to cover an electric rate increase from PEPCO, which took effect in July of 1995.

These increases are partially offset by the following programmatic cuts: personnel compensation and benefits decrease $755,000 through the elimination of 12 FTE by restructuring, the partial absorption of mandatory/uncontrollable pay by delaying the rehiring of essential staff, and reducing the number and amount of employee awards; decreases in the Art Care function of $346,000 delay conservation equipment purchases and curtail selected activities of the Education, Library, National Lending Service and Exhibition Education departments; and decreases in Renovation of $500,000 delay non-critical renovation projects.

The Gallery recognized the need to reduce expenditures and, to that end, has already eliminated 36 FTEs over the last four fiscal years (1992-1996). We will continue to make reductions where possible as demonstrated by our additional reduction of 12 FTEs in FY 1997.

Furthermore, during these years the Gallery has not been able to obtain inflationary increases of 3-4% needed for goods and services. Instead it has had to take administrative expense reductions in these areas with a 6% reduction taken in FY 1996.

In order to stay within the President's budget, while at the same time fund the mandatory/uncontrollable pay and utilities increases in FY 1997, the Gallery must make the various decreases in personnel compensation and benefits, art care, and renovation previously mentioned. The minimal increase for mandatory/uncontrollable costs is necessary to safeguard the integrity of the Gallery's operations. Since the Gallery is committed to remaining open seven days a week, to further curtail operations, if these minimal mandatory/uncontrollable increases are not provided, risks jeopardizing security and maintenance of the collections.

I must ask the Committee not to overlook the significance of our operating dollars. In particular, the Gallery's education programs are important in making the art of the nation accessible throughout the country. The Gallery's Department of Education Resources, for example, produces and distributes to every state in the union color slide programs, teaching packets, films, and videocassettes. These programs are used in schools, libraries, colleges and universities, civic organizations, and other community groups across the nation. All of these programs are based on Gallery collections and special exhibitions; they are provided free of charge with return postage representing the only cost to the borrower. For FY 1995, the viewing audience was reported at over 33 million.

Federal appropriations for the National Gallery's special exhibitions program likewise have a multiplier effect. Many museums in this country look to the Gallery to organize and to share their major travelling exhibitions. Recent examples include **The Prints of Roy Lichtenstein** at the Museum of Fine Arts, Dallas, **Piet Mondrian** at the Museum of Modern Art, New York, **Claes Oldenburg** at the Museum of Contemporary Art in Los Angeles, **Winslow Homer** at the Museum of Fine Art, Boston and **John Singleton Copley** in England at the Museum of Fine Arts, Houston.

During the 1997 year, we will be sharing the photographic retrospective **Harry Callahan** with the High Museum in Atlanta, the Detroit Institute of Fine Arts and the Chicago Museum of Contemporary Art, as well as **Corot and Early Open-Air Painting** with the Saint Louis (Missouri) Art Museum.

The high standards of the National Gallery's curatorial and exhibition organization and design staffs serve as a benchmark for other museums in this country and abroad. Museum professionals throughout the United States use the Gallery and its staff as a resource in such diverse areas as installation design, automated financial reporting, publications, and contracts. The Gallery leads the museum profession with its computerized Collection Management System; a new comprehensive, interactive video program, the Micro Gallery, which opened for public use in October 1995; research in digital imaging to continue the development of our video disc projects; and experimental programs to harness technology to further art education and scholarly efforts.

The National Gallery's unique nature and high standards, we believe, are directly responsible for sustaining an average of nearly five million visitors a year. In a survey of visitors to the National Gallery last fiscal year, all fifty states and U.S. territories were represented along with more than 80 foreign countries. The primary reason for this response is the enthusiasm of the public for the Gallery's privately acquired and unparalleled collections and its extraordinary special exhibitions such as **Johannes Vermeer** and **Winslow Homer**.

The 1997 Special Exhibition schedule promises to be ambitious, international, and diverse, ranging from paintings to decorative arts. The year will begin with **Georges de la Tour**, the renowned French painter of the seventeenth century, and a print and drawings exhibition focusing on Michelangelo. These exhibitions will be followed by **China** and **Cambodia**, each exhibition profiling the major monuments of their culture. Other single artist exhibitions include Ludwig Sander, Pablo Picasso and Thomas Moran. Rounding out the exhibition schedule are **Victorian Paintings**.

The National Gallery of Art's buildings themselves are important national monuments, as significant as the great works of art which they house. The West Building will be 56 years old in 1997; the East Building will be 19 years old. It is not surprising, therefore, that the Gallery faces a steady, ongoing program of repairs and renovations to keep these buildings functioning efficiently, securely and safely. The upkeep of these buildings is essential to protect our national treasures and the safety of our visitors. We must maintain these buildings to ensure that they continue to provide a secure and aesthetically appropriate environment so fundamental to the National Gallery of Art's mission.

Several forces make such a program necessary. The aging of these buildings necessitates the replacement of some of the basic building systems, purchase of new operating equipment when spare parts are no longer available, and updating of facilities as they become worn or impractical. The Gallery, standing as it does in the Nation's Capital, serves a steady stream of visitors and tourists from across the United States and from around the world.

The major critical projects currently underway are by their nature of greatest importance to the Gallery, multi-year in duration and costly. They are: replacement of the West Building skylights, roofing and flashing; installation of a centrally-controlled, computer-based, energy management/building automation system using previously appropriated funds and a $2 million grant from the Department of Energy's Federal Energy Efficiency Fund; and installation of the enhanced fire protection system for the art storage rooms and galleries in both the East and West Buildings.

Our ongoing renovation program focuses on projects such as: security, environmental compliance, lighting, alteration/renovation, and access, safety and building repairs. Within these categories are multi-year projects such as: asbestos abatement, replacement of the air conditioning compressor refrigerant with an environmentally safe refrigerant, elevator renovation and rebuilding, and recaulking of all the decaying expansion, mortar and stonework joints to prevent water infiltration, to name a few.

It must be noted, however, that the Gallery can only sustain so much interior disruption at any point in time, lest our collections become inaccessible to the public. Therefore, we have carefully phased-in on a priority basis our critical projects and our ongoing renovation programs so as much of the nation's art as possible remains on view.

Mr. Chairman and Subcommittee members, I would like to thank you for your time and your consideration of our needs. I will be glad to respond to any questions you might have about the Gallery, its operations and its programs.

NATIONAL GALLERY OF ART

COMMITTEE QUESTIONS FOR THE RECORD

FISCAL YEAR 1997 BUDGET REQUEST

1. **Question:** Over 90 percent of your operating budget request is devoted to staffing and related expenses such as rent, supplies and equipment. How does this compare with previous years?

Answer: Since 1988, an average of 94% of the National Gallery's operating budget has been devoted to staffing and related expenses (Salaries & Expenses).

2. **Question:** Please provide details for the record of the last ten fiscal years.

Answer: A comparison of Salaries & Expenses versus Renovation monies appropriated for the past ten years follows:

($ millions)

Fiscal Year	Salaries & Expenses	Renovation	Total Appropriation	S&E as % of Total
1997 request	$53.9	$5.9	$59.8	90%
1996	51.9	6.4	58.3	89
1995	52.8	4.0	56.8	93
1994	51.9	2.8	54.7	95
1993	51.2	3.5	54.7	94
1992	48.6	3.5	52.1	93
1991	46.0	3.5	49.5	93
1990	40.2	1.8	42.0	96
1989	38.0	.7	38.7	98
1988	37.4	-0-	37.4	100
			Average:	94%

3. **Question:** What types of contracts do you fund under the "other services" object classification?

Answer: The following types of contracts are funded under the "other services" object classification:

		Annual Estimates
(1)	Installation of Special Exhibitions	$ 2,000,000
(2)	Electronic data processing for our Collections Management System and Financial Management System (budgeting, accounting, reporting and procurement)	1,500,000
(3)	Building and related equipment repairs and maintenance (elevators, escalators, air condition compressors, electrical switchgear testing, window cleaning, uniform cleaning, pest control, trash removal, housekeeping and trade shop equipment)	400,000
(4)	Gallery-wide office equipment maintenance (PC hardware and software, library VTLS information system, telephone and networking systems, copiers, fax machines, typewriters, mail and duplicating equipment as well as servicing of motor vehicles	375,000
(5)	Art restoration by specialists in areas where the Gallery has no or insufficient expertise	350,000

(6)	Health services contracts (a nurse for 363 days a year, intermittent doctor, industrial hygiene, medical surveillance to meet OSHA occupational health requirements)	190,000
(7)	Automated payroll services of the National Finance Center	120,000
(8)	Education and extension services contracts for Sunday lecture series, graduate lecturing fellows, guest lecturers, principal and teacher institutes, writers for Gallery guides and children's materials	120,000
(9)	Offsite FEDLINK information retrieval systems [LEXIS, NEXIS, WESTLAW, Online Computer Library Center (OCLC) and Research Libraries Information Network (RLIN)]	100,000
(10)	Gallery-wide employee training	85,000
	TOTAL	$ 5,240,000

4. **Question:** To what extent are you diverting funds away from these services in fiscal years 1996 and 1997 to absorb fixed cost increases for salaries and related expenses?

Answer: In FY 1996 the Gallery took an across-the-board 6% cut ($476,000) in one-year operating funds for all non-pay classifications to help absorb fixed cost increases for salaries and related expenses. $242,000 of this cut came from "other services". In addition, "other services" costs for special exhibitions will be cut 10%.

In FY 1997 the Gallery proposes diverting $341,000 from non-pay classifications to help absorb fixed cost increases. $84,000 of this amount is to come from "other services" by curtailing selected activities of the Education, Library, National Lending Service and Exhibition programs. This includes reducing the number of film programs and Sunday lectures; limiting the Library's on-line electronic data inquiries in conjunction with cataloguing books; restricting the number of outgoing loans of art to other museums; and eliminating some educational videos normally developed in conjunction with special exhibition programs.

5. **Question:** How do you decide what to fund under contract versus in-house?

Answer: Taking into account the mission of the National Gallery of Art, which is to serve the country by preserving, collecting, exhibiting and encouraging the understanding of works of art by the American public, periodic functional position-by-position assessments are made regarding the types and quantities of staff that are necessary to carry out this mission. For example, in some cases it is more practical to obtain, via short-term contract, certain professional services only required to support specific exhibition, conservation, education, or other activities.

Certain services, such as express mail delivery, elevator maintenance, trash removal, uniform cleaning, pest control, and building and equipment repair, because they can be completed more efficiently and economically under contract as needed, generally are not accomplished in-house.

6. **Question:** What review process do you use to ensure that these decisions are the most cost effective initially and that they remain so over time?

Answer: We continually accept as our everyday challenge the responsibility for ensuring that, given the types of activities and projects underway and anticipated, appropriate staff are in place to meet those requirements. Factors that are considered include funds availability, union issues, and whether or not, for security or other reasons, the particular activity or project lends itself to outsourcing rather than continuing it with core staff.

7. **Question:** The Committee's budget allocation for fiscal year 1997 is likely to be lower than in 1996. What programs would you reduce to achieve a funding level which is 3 percent below the fiscal year 1996 conference level?

Answer: The mission of the National Gallery of Art is to serve the country by preserving, collecting, exhibiting, and encouraging the understanding of works of art by the American public, at an exemplary level. In order to maintain the very highest standards, over the years, the Gallery has consistently hired and retained the best available curatorial, educational, and management staffs. Day-to-day operations support our mission through the care, maintenance, and security of the works of art and the facilities.

Virtually all of the Gallery's annual salaries and expenses appropriation covers personnel costs, rent, utilities, communications, plus security and maintenance of buildings, grounds and contents. Thus, the Gallery has limited flexibility, given its mandated purpose as a public museum housing a rare and valuable collection of fine art.

The Gallery's immediate challenge is threefold: to maintain the extraordinary staff it now has, including world acknowledged scholars; to protect the valuable collections and international loans entrusted to the Gallery's care for the edification and enjoyment of the American public; and to maintain the two landmark structures built for the Gallery with funds donated for this purpose by the Mellon family.

The National Gallery's educational programs have an audience of some 33 million people. The Gallery's education department provides materials to schools, colleges and universities throughout the country free of charge.

The Gallery itself is visited by an average of nearly five million people each year. 72% of our visitors come from some place other than Washington and its general environs, that is from all fifty states, U.S. territories and foreign countries throughout the world.

The Gallery is recognized as the preeminent national museum of fine arts in the United States, equal to or better than other national museums in Great Britain, France, Germany, Republic of China, Korea, Japan, Italy, and Russia.

Full staffing is required to make the collections accessible to the public, mount the special exhibitions that our visitors enjoy, carry out the educational programs that are demanded of us, and supervise the critical repairs now underway.

8. **Question:** What impact would a 3 percent reduction have on staffing and how many people would be subjected to a reduction in force?

Answer: A 3% reduction below the FY 1996 conference level is a $3,304,000 cut below our FY 1997 request. At this level the Gallery would have to conduct a reduction in force (RIF). A RIF would mean the elimination of 40 more positions to achieve the reduction in addition to the 20 necessary at the conference level as included in question 10 (for a total of 60 positions). The cost of an additional RIF would tax the Gallery yet another $920,000 (RIF costs of $14,000 per person, plus anticipated unemployment compensation of $9,000 per person times 40 people) for a total of $1,380,000. This sum is not provided for in any request.

REQUEST TO OMB

9. **Question:** Your fiscal year 1997 budget request to the Office of

Management and Budget included $4,380,000 more than the current request [to Congress] for the salaries and expenses account and an additional $2,493,000 for the repair, restoration and renovation account. How would you have used those additional funds? Please provide details, in priority order, for the record.

Answer: The Gallery would use the additional funds requested of OMB as prioritized below:

(1)	Restore funds to accelerate rehiring staff for essential positions currently vacant	$141,000
(2)	Restore funding for employee awards	250,000
(3)	Restore funding for Art Care to forestall curtailing activities of Education, Library, National Lending Service and Exhibitions	146,000
(4)	Restore 6% reduction taken in FY 1996 in non-pay classifications	476,000
(5)	Replace Skylight Frame Seal, East Building	100,000
(6)	Repair Concrete Support/Marble Steps, West Building	650,000
(7)	Waterproof Below Grade, West Building	250,000
(8)	Make ADA Modifications to Restrooms	150,000
(9)	Asbestos Abatement	75,000
(10)	Transformer Restoration	200,000
(11)	Retrofit 208/120 Power Switchboard, West Building	160,000
(12)	Restore conservation equipment funds	200,000
(13)	Repair Refectory Ductwork, East Building	75,000
(14)	Elevator Design, Renovation, Rebuilding	235,000
(15)	Change A/C Compressor Refrigerant	350,000
(16)	Mall Fountain Revised Piping Design & Installation	140,000
(17)	Other miscellaneous smaller repair projects	108,000
(18)	Restore 12 FTE reduction required in FY 1997	514,000
	TOTAL	$4,220,000

$2,653,000 represents the difference between the FY 1996 Conference level of funding versus the President's FY 1996 request used in the OMB submission.

FIXED COST ABSORPTION

10. **Question:** You have identified $1,601,000 in programmatic decreases to offset partially your uncontrollable increases for personnel salaries and related expenses. If the Committee is unable to provide the remaining increase of $1,555,000 for uncontrollables, how would you absorb this amount and what impact would it have on your programs and your staffing levels?

Answer: As noted, the Gallery is absorbing 50% of the $3.2 million mandatory/uncontrollable increases to stay within the minimal $1.6 million net increase in FY 1997. To achieve this, the Gallery will eliminate 12 FTE by restructuring; delay the rehiring of some essential staff; reduce the number and amount of employee awards; decrease Art Care by delaying conservation equipment purchases and by curtailing selected activities of the Education, Library, National Lending Service and Exhibition Education departments; and decrease funding for important, although noncritical, renovation projects.

If the Gallery absorbs the remaining $1.6 million to live within the FY 1996 Conference level the integrity of Gallery operations would be severely impacted. At this level of funding, the Gallery would have to consider conducting a Reduction in Force (RIF). A RIF would mean the elimination of 20 positions to achieve the $1.6 million reduction. We would continue to freeze 20 existing vacancies. The cost of a RIF would tax the Gallery $460,000 (RIF costs of $14,000 per person, plus anticipated unemployment compensation of $9,000 per person times 20 people). This sum is not provided for in any request.

Denying the minimal uncontrollable funding of $1.6 million could have a major impact on such a small institution as the Gallery. Unlike many of our sister institutions under the Federal system, the National Gallery of Art has no branches and no other programs than those specifically stated in our mission. All activities are devoted to the care of our collections and the elucidation of them for the public.

The Gallery recognizes the need to reduce expenditures and, to that end, has already eliminated 36 FTEs over the last four fiscal years (1993-1996). We will continue to make reductions where possible as demonstrated by our additional reduction of 12 FTEs in FY 1997. Furthermore, during these years the Gallery has not been able to obtain inflationary increases of 3-4% needed for goods and services. Instead, it has had to take administrative expense reductions in these areas with a 6% reduction taken in FY 1996.

The Gallery has already scaled back its exhibition schedule for FY 1997 from fourteen to eleven, and is relying on a greater private share of funding. Included will be major shows focusing on the art of Michelangelo, Georges de la Tour, and Picasso, plus comprehensive studies of the arts of China and of Cambodia. Full staffing is essential to the success of this important Gallery activity, most notably for security, as the Gallery will be borrowing National treasures for these international exhibitions.

For the long-term outlook, freezing funding at the FY 1996 Conference level over the next six years would result in the loss of one-third of our staff, making it impossible to fulfill our mission. Full staffing is required to protect the collection and public safety; maintain, clean and repair the building, grounds and facilities; make the collection accessible to the public; mount the special exhibitions that our visitors enjoy; and carry out the educational programs that are demanded of us.

TRUST FUNDS

11. **Question:** What programs are funded with non-appropriated funds?

Answer: The use of federal funds to operate the Gallery stems from a 1937 Joint Resolution of Congress which accepted Andrew W. Mellon's gift to the people of the United States. The Resolution stipulated that the Gallery be open to the public free of charge.

Andrew Mellon's gift consisted of his art collection, funds to construct a building (now the West Building), and a restricted endowment fund to cover specific operating costs. The Congress in turn pledged the faith of the United States to provide funds for the upkeep, administration and operations of the Gallery, including the protection and care of works of art subsequently acquired by the Board of Trustees by donation or by purchase from private funds. The East Building, opened in 1978, is also a gift to the nation from the Mellon family.

The income from the Mellon endowment is used for the compensation of executive personnel, payment of legal and audit fees associated with the Gallery's charitable status, the cost of commercial insurance covering the collection, and fundraising activities. Art acquisitions are all privately funded.

12. **Question:** Are some programs funded with both appropriated and trust funds? If so, what are they and how do you decide the appropriate proportion of appropriated and trust funds?

Answer: The decision to use Trust funds for particular activities depends upon the availability of such funds and donor restrictions pertaining to their use.

The Center for the Advanced Study in the Visual Arts began with a specially designated and restricted endowment provided by the Mellon family.

Endowment income supports almost all of the activities of the Center: fellowships, an ongoing program of symposia and meetings, publications and original research. Following upon the terms of the 1937 Agreement with Andrew Mellon, support staff (6 FTEs) are funded with federal funds.

Designated and restricted private funds also finance fellowships, staff research and several seminars per year in the Conservation area.

The Gallery's library is recognized as one of the foremost art reference and research libraries in the world. The Gallery uses monies designated by a Mellon family member to supplement inadequate federal funds for the purchase of books and photographs. Similarly, income so designated from two endowments, given by William Nelson Cromwell and by F. Lammot Belin, match federal monies available for the regular free-to-the-public Sunday evening concerts. Free concerts have been a tradition at the Gallery since World War II when they served as respite for the war weary.

Finally, donations are sought for specific education projects that may be experimental and/or too costly to be undertaken from limited federal resources. The Annenberg Foundation funded the American Videodisc Project. Videodiscs containing images of American paintings from the Gallery's collection accompanied by teaching materials were distributed to schools in every state free of charge.

Another example is a $1,500,000 grant from American Express Foundation covering the four-year development of the Micro Gallery now installed in the West Building. The Micro Gallery allows the visitor to preview the collection and plan a tour of the museum using interactive computer software.

13. **Question:** Your budget assumes that trust funds for special exhibitions will be increased from 53 percent of your total budget in fiscal year 1995 to 61 percent in fiscal year 1997. What plan do you have for achieving this goal?

Answer: The projection of increased private support for special exhibitions in 1997 reflects that the program for that year includes several major international exhibitions such as; Splendors of Imperial China: Treasures from the National Palace Museum, Taipei and Picasso: The Early Years; and includes exhibitions of popular artists such as Michelangelo and Thomas Moran. This type of program will be particularly attractive to the private sector. In addition, the Gallery has taken steps in the past year to strengthen its corporate relations program which is responsible for securing private exhibition support.

14. **Question:** To what extent could you raise additional trust funds in fiscal year 1997 to offset fully your fixed cost increases? Please explain.

Answer: Government rules prohibit supplementing Federal salaries with private monies. Our fixed cost expenditure increases relate to personnel costs and utility costs.

It is common knowledge and well documented in the fundraising world that donors do not like to provide funds for operating costs. Unrestricted monies are the hardest to raise not only for museums, but for colleges and universities.

The problem is compounded for the Gallery since most potential donors know of the agreement between the Federal Government and Andrew Mellon referred to in the answer to question 11. If this agreement was not common knowledge, it certainly became so during the FY 1996 furloughs, given the extraordinary press coverage of the Vermeer exhibition. The mystique of Vermeer brought forth private funding for that one exhibition to remain open.

It should be noted that donations are conveyed with accompanying documents specifying intended use. The Gallery acknowledges all gifts accordingly so that the donor can report appropriately to the Internal Revenue Service. The Gallery has no legal right to divert funds from their intended purpose.

STAFFING LEVELS

15. **Question:** What is your goal for reducing staffing consistent with the National Performance Review?

Answer: A streamlining plan for the National Gallery of Art, consistent with the National Performance Review, was submitted to OMB in January 1995. It included a mandated reduction of 36 FTE's from FY 1993 through FY 1996, which we identified and eliminated; 12 FTE's for FY 1997, which we have identified for elimination; plus an additional 41 FTE's through FY 1999, yet to be identified. The total proposed Gallery reduction of 89 FTE's since FY 1993 represents a 10% reduction of our FY 1993 base of 884. If the Gallery is forced to meet the NPR target by reducing an additional 41 FTE's in FY 1998 and 1999, it will not be able to appropriately or professionally fulfill its mission as previously detailed.

16. **Question:** How many positions have been eliminated over the past few years and what grade level were those position?

Answer: Thirty-six positions were eliminated over the past four years at the following grade levels: three GS-11's, one GS-9, four WG-9's, one GS-7, one GS-6, nine GS-5's, one GS-4, and sixteen GS-3's.

17. **Question:** For the record please provide a distribution of staffing by grade level as of the end of fiscal year 1995 and estimates of staffing by grade level for fiscal years 1996 and 1997.

Answer: Listed below is a distribution of staffing by grade level for FY 1995 and estimates for FY 1996 and 1997:

	FY 1995 Actual	FY 1996 Est.	FY 1997 Est.
SL (Senior Level)	16	15	15
GS/GM-15	16	16	16
GS/GM-14	14	15	15
GS/GM-13	62	63	63
GS-12	57	58	58
GS-11	72	77	77
GS-10	3	3	3
GS-9	53	50	50
GS-8	14	15	15
GS-7	54	57	57
GS-6	24	30	30
GS-5	147	162	172
GS-4	129	121	111
GS-3	4	2	2
GS-2	2	1	1
WG/WS/WL/WD*	149	143	143
TOTAL STAFFING	816	828	828

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*Skilled and unskilled trades positions.

SECURITY

18. **Question:** The security workforce comprises over 300 of your 800 FTEs. Why do you require such a large security staff?

Answer: The size of the National Gallery of Art's security force has been established based upon the value of the collections entrusted to its care and the span and complexity of its mission. The Gallery is open to the public every day of the year, except Christmas and New Year's, requiring the deployment of security guards on a 24-hour-a-day basis. The area on the National Mall that must be protected comprises an area that covers four city blocks of contiguous buildings that contain over one million square feet of exhibition space that is visited by approximately five million people each year. The Gallery also has warehouse and carpentry/trade shop activities housed in 83,000 square feet of leased spaced in Cheverly, Maryland, that similarly requires protection 24 hours a day, 365 days a year.

19. **Question:** Why do you need a Federal workforce for security rather than using contract security services like the Smithsonian Institution?

Answer: The National Gallery currently uses an in-house security force rather than contract security services because studies have shown that a proprietary security force tends to be more committed to the organization, there is less personnel turnover and, most importantly, the caliber of proprietary staff over contract security staff generally means that guards are able to handle more complex duties. Also, with a proprietary workforce the employer has more flexibility in terms of dealing with short notice or unplanned requirements. Given the value of the national collection and the important number of international loans (i.e., Vermeer), we feel this is appropriate.

Our understanding is that the Smithsonian Institution's security force is primarily made up of in-house staff except for the Cooper-Hewitt museum and warehouses in New York where some contract security services are being used.

REPAIR AND RENOVATION BACKLOG

20. **Question:** What is the backlog of needed repair and renovation requirements for the Gallery?

Answer: The Gallery has a goal to complete a comprehensive assessment of its infrastructure and its repair and renovation requirements. We have completed a preliminary exterior analysis and have identified some $21 million of essential repairs. Our next effort will be to inspect all of our utility systems to identify our capital renovation costs to bring these systems to code and to extend their useful life.

21. **Question:** What would be a "reasonable" backlog for an institution of your size and type? Please explain your answer.

Answer: There are numerous studies on maintenance and repair backlogs and annual spending requirements. If one assumes a 30-year life expectancy for a particular building and its systems, then an annual funding requirement of three to five percent of the current replacement value is not unreasonable. The backlog of essential maintenance and repair results when the annual funds available are less than required to perform all of the essential maintenance and repair as the building ages. The Gallery has not completed the detailed inspections to identify what would be defined as its backlog, but considering the age of our buildings and our mechanical and electrical equipment, it would not be unreasonable to expect a figure approaching 30 percent of our current replacement value ($100 million).

22. **Question:** To what extent is the backlog growing?

Answer: Without historical data in this format, a precise answer is not available. If we receive only one percent of our current replacement value for repair and renovation, then we are falling behind on the order of $7 million per year, assuming a capital replacement value of $350 million.

23. **Question:** What amount would be required on an annual basis to keep the backlog from growing?

Answer: On a statistical basis, numerous studies would say that three to five percent of current replacement value on average would arrest the deterioration of the facility condition (roughly $15 million).

24. **Question:** What amount would be required on an annual basis to reduce the backlog by five percent a year?

Answer: Without a complete assessment and data analysis this would be difficult to ascertain. It depends on the age and condition of the infrastructure. We cannot provide a definite figure, but are working toward collecting the data and cost information needed to develop a long-range capital renewal program for all Gallery infrastructure.

25. **Question:** What is your long-term plan for addressing the most critical needs?

Answer: Having now completed the initial condition study of the Gallery's East and West Buildings' exteriors and, following more detailed probes of these areas during fiscal year 1996 to more precisely determine necessary repair methods, we will complete an extensive survey of our buildings' mechanical and electrical systems during fiscal year 1997. Taken together, these studies will provide us with the necessary data to set more precise project-by-project priority plans and timetables for completing the identified repairs in a manner that best protects people and collections and causes the fewest disruptions to the ongoing programs and exhibits available to our visiting public.

SKYLIGHTS AND FIRE PROTECTION SYSTEMS

26. **Question:** The budget request for repair, restoration and renovation assumes you will devote nearly 90 percent of that appropriation in fiscal year 1996 to two projects; namely, the west building skylights and fire protection systems. What other major critical projects have been placed on hold or significantly downsized for fiscal year 1997 in order to fund these projects?

Answer: For fiscal year 1997, an amount of $5,942,000 has been requested for repair, restoration and renovation of Gallery buildings. An amount of $5,250,000 or nearly 90 percent of this sum, will be devoted to the West Building Skylights ($4,500,000) and the Fire Protection System ($750,000). As a result, the major critical project that has been deferred from fiscal year 1997 to at least fiscal year 1998 is the Structural/Exterior Repairs and Restoration project. An amount of $650,000 had been targeted for repair of the structural support and marble steps located on the Mall-side of the West Building that have settled about one inch, creating a safety hazard. The waterproofing membrane has deteriorated with time, and water is now leaking through to the supporting structure below.

An additional $250,000 would have corrected deterioration of the West Building moat walls flashing. This would stop water seepage into office and garage areas. A detailed structural engineering study and preliminary assessment indicates the need for excavation around the base of the northeast and southeast corners of the moat walls so that the necessary structural and waterproofing repairs can be completed.

A further $100,000 would have been used for design work necessary to initiate other building structural exterior repairs identified in an exterior study of the Gallery's East and West Buildings completed in fiscal year 1994.

27. **Question:** To what extent could funds be diverted from the $4.5 million you have targeted for skylights to fund other critical projects?

Answer: The contract for replacement of the West Building Skylights is underway. Each phase is scheduled based on a funding profile, and delay costs would be incurred if the options were not executed as planned. In addition, slowing the replacement exposes the Gallery to greater risk of catastrophic skylight failure. We do not believe diverting funds is appropriate or viable.

In requesting funding for the West Building Skylight project, we have been careful to emphasize that this project involves exposure of this national historical building to the outside elements. In order to limit damage to the building, as well as avoid substantial additional cost that would be necessary were we forced to stop and then restart construction, we strongly recommend continuing the established construction schedule and funding plan that calls for $4,500,000 being available for this project in fiscal year 1997.

28. **Question:** How much has been appropriated to date for the skylight project?

Answer: Through fiscal year 1996 an amount of $7,540,000 has been appropriated for the West Building Skylight project.

29. **Question:** What is the total estimated cost for this project?

Answer: The total estimated cost of the West Building Skylight project is $19,300,000.

30. **Question:** When will the skylights project be completed and what are the outyear requirements, by year, for funding this project?

Answer: The West Building Skylight project is projected to be completed in fiscal year 1999, assuming the following outyear funding requirements will be met:

FY 1995 & prior	$3,040,000	
FY 1996	4,500,000	
Funding Available through FY 1996		$7,540,000
Outyears Funding Projections:		
FY 1997	$4,500,000	
FY 1998	4,500,000	
FY 1999	2,760,000	
Total Outyears Funding Requirements		$11,760,000
Grand Total, West Building Skylight Project		$19,300,000

31. **Question:** Last year you received $700,000 for fire protection systems. How are these funds being used?

Answer: The fiscal year 1996 funding that the Gallery received for the Fire Protection Systems project permits replacement of the existing obsolete fire detection system components in the remaining half of the East Building and the installation of additional fire system components in the West Building basement and ground floor. Replacement of obsolete fire detection system components in the first half of the East Building and connecting link as well as the installation of detection system components in the West Building attic and main floor galleries began in fiscal year 1995.

32. **Question:** What is the total estimated cost of this project?

Answer: The total estimated cost of the Fire Protection Systems project is $5,300,000.

33. **Question:** How would you use the $750,000 for fire protection systems included in the fiscal year 1997 budget?

Answer: Funding being sought for fiscal year 1997 will permit the installation of additional fire detection systems in the East Building and connecting link and replace the obsolete fire alarm bells. We will initiate the fire protection upgrade in seven art store rooms that currently do not have fixed fire suppression systems.

34. **Question:** What would be the impact of providing less funding for this project and stretching out this effort?

Answer: Providing less funding for this program and stretching out this effort would further delay, with attendant risk, bringing our two landmark buildings up to the current fire codes. Also, obsolete equipment and systems would remain in place longer, further subjecting us to the possibility that already scarce replacement parts will not be available when needed, rendering the system inoperative and placing the Gallery's collections at risk. Additionally, the replacement of Halon fire suppression required by EPA could not be phased out as scheduled.

35. **Question:** When do you expect to complete the fire protection systems upgrade and what funding level will be required in fiscal year 1998 and each subsequent year in order to meet that scheduled completion date?

Answer: We expect to complete the fire protection systems upgrade in fiscal year 2001. The following funding levels will be required in fiscal year 1998 through fiscal year 2001 in order to meet this scheduled completion date:

FY 1998	$1,200,000
FY 1999	500,000
FY 2000	500,000
FY 2001	995,000

REPAIR, RESTORATION AND RENOVATION PRIORITIES

36. **Question:** For the record, please provide a list, in priority order, of your repair and renovation backlog, including estimates by project.

Answer: Those renovation and repair projects identified in our request to the Office of Management and Budget, but not included in our current request, are viewed as our primary backlog of projects for fiscal year 1997. These projects are listed in priority order as follows:

Replace Skylight Frame Seal, East Building	$100,000
Concrete Support/Marble Steps, West Building	650,000
Waterproof Below Grade, West Building	250,000
ADA Modifications to Restrooms	150,000
Asbestos Abatement	75,000
Transformer Restoration	200,000
Retrofit 208/120 Power Switchboard, West Building	160,000
Repair Refectory Ductwork, East Building	75,000
Elevator Design, Renovation, Rebuilding	235,000
Change A/C Compressor Refrigerant	350,000
Mall Fountain Revised Piping Design & Installation	140,000
Other, Miscellaneous Small Projects	108,000
TOTAL	$2,493,000

Upon completion in fiscal year 1996 of additional probes and investigations following a fiscal year 1994 study of the Gallery's East and West Buildings' exterior structures, and based on a fiscal year 1997 study of our buildings' mechanical and electrical systems, we will have more precise project-by-project indicators and timetables necessary to address our backlog of repair and renovation requirements. Among those projects already identified and accorded high priority within the overall estimated $21 million Buildings Structural/Exterior Repairs and Restoration project are the following:

Waterproof Below Grade, Phase II, West Building	$ 620,000
Remove/Restore Roof, East Building	1,200,000
Roof Membrane/Plaza Renovation	1,300,000
Exterior Stonework Caulk, East Building & West Building	4,425,000
TOTAL	$7,545,000

Institute of Museum Services
Director Diane Frankel
Opening Statement
House Subcommittee on Interior and Related Agencies
FY 97 Appropriations

Thank you for this opportunity to provide testimony to the Committee. While I recognize that we all must join forces and find ways to cut our budget deficit by doing more with less, I hope that as you enter deliberations this year you will consider the tremendous contribution museums across the country have made to this effort thus far.

I'd like to tell you how museums throughout the United States will be affected by the proposed 27% cut in the Institute of Museum Services FY 1996 budget. Because fully 94% of the IMS budget goes directly to museums - with only 6% for IMS administration costs - a cut to IMS is felt most at the local level. This year IMS anticipates making 200 fewer grants. Because IMS does not provide on-going support for any institution it is difficult to identify which local communities will be affected. However, throughout the country there will be museums that are less prepared for the next natural disaster; families, children and teachers seeking the enriched learning environment of a museum who will find fewer services; collections care activities that will be deferred and small museums that will find they have access to even fewer resources.

As you know, nearly 80% of the IMS program budget is dedicated to the General Operating Support program. Dollars for operating support are critical to museums; they help museums maintain hours of operation, care for collections and bring a wide range of educational and cultural activities to the public. Yet, dollars for operating support continue to be the *most difficult* type for museums to raise. Unlike support for a particular project or program, support for general operations does not provide the public recognition that corporations, individuals and foundations must often seek to be true to their missions.

Our grant recipients speak eloquently about how important general operating funds are and the difference they've made in their communities. Their stories are repeated by IMS grantees in cities and towns throughout the US.

From Mark Sinclair, Executive Director, Catawba Science Center, Hickory NC:

> "[IMS] serves museums of all types, all over the US and allows them to serve literally millions of people of all kinds...From my admittedly-biased viewpoint, IMS is a bargain. It is the kind of small, efficient, broad-based program that the federal government OUGHT to be involved with.
>
> Let me tell you what we've been able to accomplish at the Catawba Science Center (CSC) with IMS support. When I arrived here seven years ago, CSC served about 50,000 people per year, had few good exhibits, a very weak school field trip program, and virtually no corporate support. During my first two years, we re-organized and tuned things up so that we were professional enough to apply for IMS support. This points out one of the values of IMS: museums work hard to be 'good enough' to apply, i.e. IMS encourages museums to improve.
>
> When we were 'good enough,' we applied and were fortunate enough to receive a GOS award. From that year on, our fortunes grew rapidly; we increased the number of corporate members from less that 10 to over 100, doubled the number of school children we served, increased our family membership by about 40%, got several large grants to upgrade our exhibits within the medical and physical sciences, and initiated minority outreach efforts.

> At each stage, one of the key selling points we used to prospective donors was that we had received an IMS grant ... IMS awards ...can be utilized to attract additional audience and support."

From Lisa Domenici Gorence, Executive Director Albuquerque Children's Museum, NM:

> "IMS specifically supports museum which exemplify the highest professional standards in the business. The application process is very in-depth and highly competitive. Our Museum just completed our first General Operating Support application last January and we found the process to be an outstanding evaluation tool. In addition, an IMS grant award gives a receiving institution vital credibility that leverages more private support."

From Dr. Edward J. Maruska, Executive Director, Cincinnati Zoo and Botanical Garden, OH:

> "IMS funding has helped our Zoo grow into a world-class conservation organization. Over the past decade, grant awards ranging from $25,000 to $112,500 have enabled the Zoo to expand and enhance its operations. These funds have made it possible for us to broaden our educational programs offered to the local community. On a larger scale, IMS awards have allowed our Zoo to initiate nationally recognized projects, such as the establishment of the International Wildlife Germplasm Bank (the world's first collection of cryopreserved germplasm of endangered plants and animals)."

IMS has made a great effort over the years to see that these precious general operating support dollars benefit as many high quality museums as possible. The competition for these dollars is very intense and we never feel that we can come close to funding all of the highest quality applicants. With this in mind, we made the General Operating Support grant a two year award and reduced the amount of the award. With this change we were able to fund an additional 126 museums in 1995.

More recently, we have let museums know that after receiving two consecutive awards (that is, funding for four years) they will not be eligible to compete for a year. The first year of the "sit out" will be FY 2000.

Unfortunately, the effect of the two year grant and the "sit out" policy will be significantly diminished with reduced appropriations for IMS.

This year we celebrate the twentieth anniversary of the Institute of Museum Services. The field has grown significantly over this time. Twenty years ago we did not have the diversity of museums we have today, in fact many of today's museums did not exist. We did not have the diversity of audiences, in fact many of our current visitors did not feel welcome; we did not have the diversity in approach to the way we present exhibitions and we did not have the diversity of educational offerings. Twenty years ago, Congress recognized the importance of museums and the scientific, cultural, historic and artistic collections they hold. They envisioned an agency that would:

> encourage and assist museums in their educational role, in conjunction with formal systems of elementary, secondary and postsecondary education and with programs of non formal education for all age groups;
>
> assist museums in modernizing their methods and facilities so that they may be better able to conserve the cultural, historic, and scientific heritage of the United States;

> ease the financial burden borne by museums as a result of their increasing use by the public.

It is impressive to note that twenty years later Congress finds that this mission remains an important federal role. In May, 1995, the House Committee on Economic and Educational Opportunity marked up H.R. 1557. The Committee proposed a continued authorization for the Institute of Museum Services (IMS) at FY 95 appropriation level ($28.7 million) for three years. From the House report:

> The Committee wishes to acknowledge the contributions of the IMS in helping to preserve America's historical artifacts. Since its creation in 1976, the IMS has fulfilled its mission of providing general operating expenses and conservation activities for all types of museums. Funds expended by the IMS have helped museums increase their professionalism and better provide unique educational opportunities to the public. The Committee notes that the IMS has accomplished its purposes on a limited budget.
>
> For these reasons, and because general operating funds are among the most difficult for America's museums to raise, the Committee legislation continues the IMS for three additional years, and maintains its current funding level of $28.7 million. The Committee urges the Institute to continue to remain true to its mission.

IMS has been a partner in the development of museum services over the last twenty years:

- IMS reaches museums of *all* types and *all* budget sizes, it reaches museums that for geographic or other reasons do not have access to private funders.
- IMS grants, based on peer acknowledged merit, leverage additional funds.
- IMS requires that museums reach out to the broadest audiences.
- IMS encourages museums of all sizes to reach for the highest standards of practice in fulfilling their missions.

Finally,

- IMS listens and responds with leadership.

One example of the IMS leadership role is its work in strengthening museum school partnerships. Since 1994, IMS has challenged museums to transform their partnerships with schools and actively engage in curriculum-linked programs. Museums can effectively take part in school reform by providing learning opportunities in every school discipline from history and science to mathematics and art.

The ultimate goal of this focus is to transform traditional thinking about museums and schools. By working collaboratively, these institutions can make a major impact on the education of our children. The funded projects all have national impact and include: the use of research findings in shaping the learning process in museums; use of interactive telecommunications to expand museum school partnerships; and replicable models for integrating museums resources into student learning through exhibition development, peer mentoring, school reform initiatives and building parent networks.

In the first year of this program, IMS had 800 requests for information (10% of the entire museum community) and received 313 requests for funds. Acknowledging that this small program tapped a significant need in the field, IMS raised private funds to convene a national meeting of museum school partners. One hundred twenty five museum educators and school professionals attended the conference, which will be followed with a publication that will be widely distributed.

Another example of IMS leadership is the initiation of the National Award for Museum Service. The award places a national spotlight on museums that are central to the life of their communities. While this award provides no monetary compensation it has become a highly sought-after source of recognition. It honors museums that demonstrate an institutional commitment to public service with programs that address social, economic or environmental issues. At a luncheon on Capitol Hill honoring the award winners, recipients described their accomplishments.

Bobye List, director of the Brooklyn Children's Museum, NY, related stories of young teens who are a part of the MUSEUM TEAM, a program that addresses the city-wide lack of adequate, supervised, educational activities for school-age children during their non-school hours.

Carlos Tortolero, executive director of the Mexican Fine Arts Center Museum, Chicago, IL, spoke movingly about the Museum's success in creating a home for Mexican culture "sin fronteras" (without borders) and the Museum's advocacy work on issues of central concern to the Mexican people.

David Goudy, director of the Montshire Museum of Science, Norwich, VT inspired all with the story of how this regional science resource galvanized community support and spearheaded a unique center for recycling and waste management for the entire state of Vermont.

Ron Chew, director of the Wing Luke Asian Museum, Seattle, WA, provided eloquent testimony to the power of a community-based organization that is on the vanguard of high quality and intensive community involvement. He described creating intergenerational exhibits that engender community pride and raise awareness about the contributions of Asian Pacific Americans in Seattle.

And finally IMS has taken leadership by spotlighting museums' role in cultural tourism. Travel and tourism is America's number one service export. In 1994, the travel and tourism trade surplus was $21 billion, 9% of all exports, 40% of service exports. It is America's second largest employer, providing more than 13 million jobs directly and indirectly. In 1994, $417 billion in expenditures and $58 billion in federal, state and local tax revenues were generated through the travel and tourism industry.

The October, 1995, White House Conference on Travel and Tourism called for a series of natural and cultural tourism summits to take place throughout the U.S. Recently the Director of IMS was asked to participate in a issues forum, for the travel industry, with the Department of Interior on Tourism and Public Lands. Participants recognized that many tourists visit both parks and museums. With 376,000,000 visitors to national parks and 600,000,000 visitors to museums, both parks and museums are significant to both the domestic and international tourism industry. In 1997, IMS will support museums' cultural tourism initiatives.

IMS is truly a model federal agency. Together with the museum community the agency has made the most of a modest federal investment in the nation's museums serving millions of people across the country each year. I hope that you will lend your support to the Administration's request for an additional $2 million for U.S. museums.

Institute of Museum Services
Reponse to Questions

Restructuring

Given current funding constraints has IMS developed a downsizing and restructuring strategy?

Yes. IMS has developed an agency-wide plan for restructuring the organization, confirmed by the National Museum Services Board. This plan will address the needs of the American public. In most funding categories, and in all administrative services, activities have been proportionally reduced to the cuts we anticipate receiving in 1996.

The FY 1996 conference report proposes reductions to IMS's budget. What are you doing to accommodate these reductions into your downsizing and restructuring efforts?

Our plan for restructuring IMS includes the following changes: 1) the proposed elimination of the Technical Assistance Grants funding category (merging projects previously eligible for funding under that category to the Professional Services Program); 2) a reduction in the number of annual deadlines in the Conservation Project Support category; and 3) a reduction in IMS administrative activities.

How will 1996 funding effect FTE levels? How many actual positions will be eliminated as opposed to open positions that will not be filled?

IMS has historically maintained very low administrative costs. IMS is planning to operate without the permanent elimination of any of the nineteen FTEs allotted by the Office of Management and Budget. In 1996, actual attrition and lapse will probably reduce overall FTE usage, saving substantial administrative funds without IMS having to eliminate any FTE positions. In addition, IMS intends to delay filling 3 vacancies, which represent 16% of the agencies total number of FTEs in 1996. This will enable the agency to realize administrative savings to the maximum extent possible while fulfilling the mission of the agency.

Did you reduce the number of grant applications and grants awarded?

IMS anticipates a final appropriation for FY 96 at 27% below FY 95 levels. As a result projections are that the number of awards will be reduced by the same percentage in nearly all programs. IMS will make FY 96 awards later in the year, so final numbers are not available.

As of April 3, 1996, the final deadline for two programs has passed. For those programs, we have an 18% reduction in total applications, which is probably due to the museum community's uncertainty of the funding status of IMS.

Did you consult with the museum community before implementing a reorganization plan?

The principal programmatic reorganization of IMS is the intent to combine support for training of staff of small museums with support for museum associations. We consulted widely with the museum community and associations to determine if this change would be viewed positively. Response was very positive.

The FY 1996 conference level provided a $7 million reduction from the FY 1995 enacted level, yet IMS is showing an increase of 4 FTE. What is the rationale for the increase in staffing?

Although the total employment level for the agency approved by OMB is 19 FTE, at this point anticipated budgetary constraints will not permit IMS to fill each of these positions in the current fiscal year. For 1997, the budget year covered by this request, IMS has realigned its operations in many administrative areas. This plan will enable IMS to sustain activities critical to its mission, but will return sufficient funds in Personnel to fill the vacancies experienced in 1995-6.

Reauthorization

What is the current status of your reauthorization?

The Institute of Museum Services reauthorization is an element of three different bills.

- H.R. 1557 calls for reauthorization of the Institute within the National Foundation for the Arts and Humanities. It proposes funding at $28.7 million, a three year authorization and continuation of the agency. The bill has been passed by the House Committee on Economic and Educational Opportunity. No floor action is scheduled.
- S. 856 calls for creation of an Institute of Museum and Library Services within the National Foundation for the Arts and Humanities. The proposal authorizes the agency for five years with $28.7 million for IMS in FY 96 and such sums through the year 2000. S. 856 has been passed by the Senate Committee on Labor and Human Resources. No floor action is scheduled.
- The Senate attached provisions to the Workforce Development Act (S.143), companion to the Careers Act (H.R. 1617) creating an Institute of Museum and Library Services. Conference on S.143 and H.R. 1617 is underway.

Do you expect to see a reauthorization bill pass the Congress before this Committee completes its work on the FY 1997 budget?

As of this writing, negotiations on several sensitive provisions related of the Job Training Bill continue. Both the House Committee on Economic and Educational Opportunity and the Senate Committee on Labor and Human Resources to enact legislation this year.

Current reauthorization proposals would take IMS out of the National Foundation for the Arts and Humanities. Do you support this proposal?

Our primary concern is to see that legislation is enacted that addresses the interests of the nation's 8000 museums and the 600,000,000 visitors they serve each year.

Museums and Education

Your budget justification continually refers to education programs. How do you prioritize your grants to ensure that your grants are being used to promote education in the museum setting?

As museums are inherently educational institutions, their overall operations are based in their educational missions. Supporting museums' general operations, therefore supports their educational mission. Moreover, applicants to GOS must describe their educational activities in several ways --describing their audience and efforts to broaden it, exhibition activity, interpretative programming activity, how their collections are cared for to ensure their safety for future educational goals, and how collections are used in educational activities. Since each applicant is judged on these responses, only museums offering high levels of education to the public received awards.

Currently through Museum Leadership Initiatives, IMS directly supports projects to strengthen museum/school partnerships. In 1996, IMS will joins with three other federal agencies to support an agenda of theoretical and applied research in learning in museums. The results of the research will be applied in museums to further enhance their practices.

What has been the result of challenging museums to engage in curriculum-linked programs?

Museums have a strong history of working with local school districts to enhance their curricula. In promoting museum/school partnerships, IMS has given museums additional incentives to interact creatively and to work more closely with schools to achieve mutual goals. Museums and local schools have reacted very favorably to the Initiative.

Have you incorporated the curriculum-linked program concept into the actual grant? If not, do you think this would be a good policy?

For the MLI award, applicants work with their school partners to identify and develop appropriate programming activities to enhance reaching specific curricular goals.

General Operating Support

What has been the effect of making general operating support grants a two-year award?

Museum staff have commented favorably on the financial stability that is provided by having an award distributed over a two-year period. We also hear favorable reports on the reduced burden of prepare the application materials biannually rather than annually. The maximum amount a museum could receive over a two year period was reduced from $150,000 to $112,500 - this resulted in more museums receiving grant funds in 1994 and 1995. This last benefit, however, has been weakened due to the reduced appropriation.

Have you done an analysis of the effect of requiring museums who receive awards for two awards to sit out the next year?

In considering the impact of having museums sit out for a year following two consecutive awards, IMS considered the fact that many deserving museums did not receive GOS awards due to inadequate appropriations. As a result (and after soliciting extensive public comment from the museum community on the issue), IMS determined that having those museums sit out for one year would allow other good museums to benefit from GOS awards. The effect of the reduced appropriations for GOS, however, will not permit the benefits we anticipated.

Are the policies of a two-year award and the sit-out period being incorporated into your reauthorization?

The language of the Museum Services Act has enabled IMS to serve the museum community effectively and responsibly for 20 years. The statute has changed very little over the last twenty years allowing the agency to identify and enact improvement to its services on an ongoing basis. We see no need to incorporate very specific language regarding the two year grants or the sit-out period at this time.

Addressing Issues of National Concern

What affect, if any, do your grants have on addressing issues of national concern?

Providing institutional support for all types of museums strengthens the Nation's educational infrastructure. IMS addresses this national concern in a unique way, building museums' stability, through general operating support, while allowing local communities to decide on programs and exhibition content. In addition, museum-school partnerships help teach students in every subject area from science and math to history and art.

Caring for collections ensures that future generations will have access to our nation's scientific, artistic, cultural and historic heritage. Though held locally, museums' collections are valued nationally. Our museums and the treasures they hold are part of a public trust.

IMS also strengthens private support for museums. Its grants for peer acknowledged excellence help spark important public private partnerships that are vital to the health of museums in small and large communities throughout the country.

IMS encourages museums to address issues of national concern as they affect local residents. The National Award for Museum Services applauds the efforts of museums that have become an integral part of their communities. These museums use their resources to affect change in a variety of areas: supporting at-risk youth, helping families, building strong communities, assisting in economic development, addressing environmental concerns and much more. Last year the following museums were recognized:

The Brooklyn Children's Museum, NY, for their work with young teens who are a part of the MUSEUM TEAM, a program that addresses the city-wide lack of adequate, supervised, educational activities for school-age children during their non-school hours.

The Mexican Fine Arts Center Museum, Chicago, IL, for their success in creating a home for Mexican culture "sin fronteras" (without borders) and their work on issues of central concern to the Mexican people.

The Montshire Museum of Science, Norwich, VT for galvanizing community support and spearheading a unique center for recycling and waste management for the entire state of Vermont.

The Wing Luke Asian Museum, Seattle, WA, for their intergenerational exhibits that engender community pride and raise awareness about the contributions of Asian Pacific Americans in Seattle.

Cultural Tourism

You note that IMS has taken a central role in cultural tourism. What is IMS currently doing in this area?

In FY 96, IMS has announced that it will consider proposals that under its Professional Services Program that enhance the role of the nation's museums in promoting and benefiting from cultural tourism. IMS believes museums are important factors in cultural tourism - travel directed toward experiencing the arts, heritage, and special character of a place or travel for personal enrichment - and should expand their role. IMS encourages projects to inform the museum community about the practices of the tourism industry and to inform the tourism industry of the services museums offer to attract tourists. Applicants are encouraged to explore the value of collaborative efforts among museums to promote themselves to tourism.

In addition, IMS plays a role in cultural tourism through supporting the general operations of museums. Eighty-eight percent of General Operating Support grantees say that the grant helped to improve or maintain visitor services. Grantees report that the grant is used to extend or maintain hours; provide new or enhanced printed materials - - such as brochures, guides, catalogues and maps; provide more docents or better trained docents and volunteers to assist with public activities; expand or improve both on-site and off-site exhibits and programs; improve labeling and signs; improve or maintain visitor areas and maintain low or no admissions fees.

IMS has participated in the White House Conference on Travel and Tourism. What are the results of this conference?

The Institute, together with the National Endowments for the Arts and Humanities, the President's Committee on the Arts and Humanities, and a group of more than 30 humanities, museum, arts, and historic preservation organizations convened a post-White House Conference, Partners in Tourism: Culture and Commerce, on November 1, 1995. More than 180 persons (more than half of whom were Conference delegates) participated with Administration officials and leaders from nationally recognized cultural organizations in discussing follow-up to the Conference's recommendations - - one of which specifically cites as a priority to: "Preserve our natural, historic and cultural resources for future generations and expand urban and rural economic development opportunities by fostering environmental and cultural tourism."

Participants in the Culture and Commerce meeting identified several specific ways in which cultural agencies and organizations can encourage cultural tourism development through expanded involvement with the travel and tourism industry. These included:

- Providing opportunities for education and training;
- Fostering strategic partnerships;
- Identifying and disseminating models of collaborative projects and their products; and
- Other ways of strengthening the ability of cultural organizations to participate as full partners in the U.S. travel and tourism industry.

In addition, the final report of the White House Conference directed that the National Council of State Travel Directors, part of the Travel Industry Association, convene a series of regional "Natural and Cultural Tourism Summits" to identify strategies to meet the unique needs of each region of the country.

IMS will encourage museums participation in these conferences.

What affect, if any, will this conference have on your present or future budget requests?

IMS anticipates encouraging museums to participate in local cultural tourism partnerships through its traditional support of museums' infrastructure. IMS will also encourage this activity through speeches, conferences and articles.

STATEMENT OF J. CARTER BROWN, CHAIRMAN, THE COMMISSION OF FINE ARTS, BEFORE THE HOUSE SUBCOMMITTEE ON APPROPRIATIONS FOR THE DEPARTMENT OF INTERIOR AND RELATED AGENCIES,

27 MARCH 1996

The Commission of Fine Arts is requesting an appropriation for Fiscal year 1997 of $867,000, basically the same as our present appropriation except for nominal increases in salaries and space rental from GSA, two items over which we have no control: a combined $19,000 general pay raise for January '96 and '97 and $14,000 for space rental. Our program remains unchanged. I believe it's worth noting that the personnel level on our staff has remained at seven for the last thirty years or more and, of course, you know that our seven members serve without compensation except for reimbursement of travel expenses.

As has been our practice for the last several years, we would like to enter into the record highlights of the more significant projects that have come before us since we met last year. A complete list of principal projects is attached to this report for the Committee's information.

ANNUAL REVIEW OF ACTIVITIES

The design and siting for Congressionally authorized memorials continue to absorb a great deal of our time:

WORLD WAR II MEMORIAL

By far the most important matter to come before the Commission in recent years is the World War II Memorial. After a great deal of deliberation, we have helped bring consensus for a site that truly reflects the significance of this conflict in terms of our nation's history: the "Rainbow Pool", between the Lincoln Memorial and the Washington Monument. It is the one place we looked at (and we looked at a great many) where we could finally say that the site was truly commensurate with the historic importance of the event. This axial location has to be one of the most beautiful spots in the city.

The challenge before us now will be to find a design that measures up to the significance of the site without detracting from it in any way, and at the same time expresses the extraordinary sacrifice made by Americans, both military and civilian, during the war.

The American Battle Monuments Commission, and particularly former Ambassador Haydn Williams, appears to be very much on track in handling the complex proceedings of obtaining the site and design, and we will be looking at the results of their efforts probably sometime later this summer or early fall.

AIR FORCE MEMORIAL

The Air Force Memorial will be located on the Virginia hillside next to Arlington Cemetery overlooking Washington. It is about half way between the Netherlands Carillon and the Marine Corps Memorial. The placement will be a complement to the existing memorials without appearing to be intrusive in the natural landscape.

James Freed, who designed the Holocaust Memorial and the yet-to-be-completed Ronald Reagan Building in the Federal Triangle, is the architect, and we are most excited by his progress so far. Based on the star insignia of military aircraft, it will celebrate the sky in a most moving way and should end up as one of our more dramatic military memorials.

WOMEN IN MILITARY SERVICE MEMORIAL

Equally dramatic, but in a much different way, will be the Women in Military Service Memorial, situated in the hemicycle at the entrance to Arlington National Cemetery. The termination of Memorial Drive was never properly finished, so this is a great opportunity to complete a very important entrance to the cemetery and at the same time provide a most fitting tribute to the Women in Military Service. Most of the construction, which is just now getting under way, will be contained behind the existing walls, so there will be little significant change to the view of Arlington House and President Kennedy's grave.

BLACK REVOLUTIONARY WAR PATRIOTS MEMORIAL

The sponsors of the Black Revolutionary War Patriots Memorial have had an approved design for some time but until now have not had sufficient funding to start construction. However, on the last day of February, at a gathering here in the House, they happily announced a major gift from General Motors that will get them very close to proceeding with the memorial. It is to be located at lakeside in Constitution Gardens across the water from the Signers Memorial, a most appropriate and dignified site in terms of its historic context.

THE AFRICAN AMERICAN CIVIL WAR MEMORIAL

Located in a small park and incorporating a Metro stop on Vermont Avenue and 'U' Street, the African American Civil War Memorial will feature a sculptural grouping and the names of the 185,000 participants in the War. Funding is in place and construction is to begin soon. This memorial and its Revolutionary War counterpart will be the first such memorials in Washington Commemorating the participation of African-Americans in the nation's historic military conflicts. It is also significant that this site is located in the U Street corridor and will create an historic presence in a recently refurbished and revitalized area of the city.

FRANKLIN DELANO ROOSEVELT MEMORIAL

We are in the final phase of review of several sculptural elements for the FDR memorial, which as you know has been under construction for over a year.

The larger-than-life portraits of the President and Mrs. Roosevelt by Neil Estern have been inspected and approved; the Funeral Cortege and the well-known view of FDR on the bridge of a naval vessel, both by Leonard Baskin, also have been approved; and finally the First Inaugural piece by Robert Graham is nearing approval.

As you might guess, producing a portrait that conveys the tragic as well as heroic aspects of historic figures can be illusive even for our very best sculptors. The process often involves adjustments to the actual forms in the final phase of development before casting.

KOREAN WAR VETERANS MEMORIAL

The nineteen heroic figure sculptures in the Korean War Memorial, completed and dedicated last July, are an excellent example of just how long a process it is to arrive at a successful outcome. There were many, many design iterations of the troops depicted, and other changes in which the Commission was intimately involved, before a final, balanced solution was achieved.

JAPANESE AMERICAN FRIENDSHIP MEMORIAL

I would like to provide one final note on a memorial of some congressional interest: the Japanese American Friendship Memorial. The preferred site at the intersection of New Jersey and Louisiana Avenues, one I strongly favor, will require legislative transfer to the National Park Service. HR 2636, currently pending, would do this in exchange for a triangle of land that the Park Service would release to the jurisdiction of the Architect of the Capitol, one that currently sits, anomalously, surrounded by grounds under the Architect's jurisdiction. This arrangement will allow for the continuation of a policy without exceptions of not placing memorials within the Capitol grounds, a policy we heartily support, lest there by a flood of new memorial proposals once that gate were opened. As it now stands, the only memorial on the Capitol grounds is the Taft Carillon, which was constructed some forty years ago.

NATIONAL MUSEUM of the AMERICAN INDIAN

At the federal level, certainly no building will be more important than the Museum of the American Indian. To be situated on the east end of the Mall at the very foot of the Capitol, it presents an enormous challenge to the design profession to come up with a building that, above all, respects the Capitol and the historic environs of the Mall, and at the same time is a vibrant and inspiring symbol of Native American culture.

The preliminary designs by Douglas Cardinal are most encouraging. Not only do they appear to satisfy the important criteria of respect for site and culture, they also promise a building that is very much an expression of the best of contemporary architectural values. There is some opinion that the National Gallery's East Building was successful in this regard, and at this point it appears that the Indian Museum will do likewise.

THE FEDERAL TRIANGLE BUILDING

The other project of equal magnitude is the largest single federal office building after the Pentagon. Recently named for former President Ronald Reagan, it is now nearing completion on a site that for many years served as a vast parking lot and, as such, was one of the worst eyesores of the federal presence in the monumental heart of Washington. In addition to its architectural distinction, it also will contain three original public sculptures commissioned by GSA as part of its Art in Architecture Program. There was a time when virtually every federal building was enriched in one way or another by the addition of public sculpture or murals as a matter of course, a fact that is particularly true of the existing Federal Triangle.

So the addition of sculpture to the Ronald Reagan Building is completely fitting and in keeping with its neighbors.

THE MCI ARENA

At the District of Columbia government level, the design of the new sports arena has occupied much of the Commission's time over the last year. While the site is not ideal and required the elimination of a major cross-town street, it is the Commission's hope that its shortcomings will be far outweighed by the excellence of its design and, more importantly, by the excitement and promise of renewal that it will bring to this area of the city.

THE WASHINGTON OPERA at WOODWARD and LOTHROP

It is for this same promise of excitement and revitalization that the Commission fully supports the relocation of the Washington Opera from the Kennedy Center to a downtown location. The plan is to occupy a refurbished department store that is presently empty, with little hope of restoring a use of equal caliber. While the Commission currently has no jurisdiction over the site, we have in the past been asked to advise the District government and its Zoning Commission in matters of equal public significance. We believe our good offices should be used to support this very worthwhile undertaking.

THE JOHN F. KENNEDY CENTER for the PERFORMING ARTS

There is a very ambitious plan being developed to meet the compelling needs to bring the Center into conformance with new regulations requiring access for the physically disabled. In addition, the Center is also developing an agenda for major changes to the existing structure both to improve its function as well as for aesthetics. Of particular interest to the public are measures that would increase parking and provide a direct connection to the terrace from the river's edge.

THE WHITE HOUSE

The National Park Service is continuing its studies of a long-range plan for improving the security of the presidential family and the overall effectiveness of White House operations. It is among the most pressing of issues on the Commission's agenda, and much of our time is being spent in furthering these efforts. This is particularly true of traffic circulation around the White House and improving the unsightly conditions that have developed as a result of the decision to close off vehicular access on the north side. Nevertheless, the President's security comes first.

PENNSYLVANIA AVENUE

Despite the termination of the Pennsylvania Avenue Development Corporation, the Commission will continue to play an active role in the design review of projects fronting on the Avenue through its administration of the Shipstead-Luce Act, a law that specifically takes in all private construction as well as public, along both sides of the avenue. Since the PADC area extends to a line a block or so north of the Avenue, it might be prudent for the Congress to extend CFA authority over the entire Pennsylvania Avenue National Historic Site since there is currently no federal agency, other than the Commission, specifically empowered to review design on the Avenue proper. We have been administering the Shipstead-Luce Act for more than sixty years and have a body of knowledge and experience that could be put to good use in seeing that development continues to meet the highest standards of design excellence in the absence of PADC.

COMMEMORATIVE COINS and MEDALS

The U.S. Mint has submitted designs for the Ruth and Billy Graham Congressional Medals and one for Rabbi Menachem Schneerson. Commemorative Coins have included designs for National Community Service, the Special Olympics, and an extensive issue of coins celebrating the 100th Anniversary of Olympic games to be held in Atlanta this summer. In addition to those submissions, the secretary serves on the Citizens Commemorative Coin Advisory Committee established by Congress three years ago. Its mandate is to rein in the proliferation of coin issues and establish some limited number of new proposals on an annual basis, an effort the Commission endorses.

THE NATIONAL CAPITAL ARTS and CULTURAL AFFAIRS PROGRAM

The funds for this program are appropriated apart from the Commission's operating expenses but are still an important part of its work. Recognizing the compelling need to make up for the lack of donations from a strong commercial-industrial sector in the District of Columbia, the Congress authorized this grants program in 1985. Since then, the program has helped a number of special institutions provide a rich cultural environment in the National Capital. A list of the institutions and grants is supplied for your information.

The Commission is encouraged by the support this program is receiving from both the Congress and the Administration and is requesting an increase in the total amount of money to be distributed from $6,000,000 to $6,760,000 for the next fiscal year, still short of the $7,500,000 of FY 1995. This increase is needed to offset the ever tighter availability of private sector support and also compensate the level of grants when an additional institution qualifies for the program, resulting in smaller individual grants.

I believe the Commission continues to serve the public and the government well with its small staff and very modest outlay of funds, and I urge the continued support given to it by the Congress over a good many years.

THE COMMISSION OF FINE ARTS
ESTABLISHED BY CONGRESS 17 MAY 1910

THE PENSION BUILDING
441 F STREET, N.W., SUITE 312
WASHINGTON, D C 20001

202-504-2200
202-504-2195 FAX

National Capital Arts and Cultural Affairs Grants Program

1995 Recipients and Awards

Total: $ 7,500,000

Recipient		Award
American Architectural Foundation	$	363,654
Arena Stage		500,000
Capital Children's Museum (National Learning Center)		363,040
Corcoran Gallery of Art		500,000
Folger Shakespeare Library		437,372
Ford's Theatre		423,590
JFK Center for the Performing Arts		500,000
Meridian House International		336,184
National Building Museum		358,877
National Museum of Women in the Arts		459,004
National Symphony Orchestra		475,240
Phillips Collection		396,782
Shakespeare Theatre at the Folger		435,753
Studio Theatre		328,319
Textile Museum		345,196
Washington Ballet		350,457
Washington Opera		500,000
Washington Performing Arts Society		426,532

COMMISSION OF FINE ARTS
QUESTIONS AND ANSWERS FOR HOUSE APPROPRIATIONS COMMITTEE

30 April 1996

Question: Some years ago Congress passed the Commemorative Works Act which was designed to curb the proliferation of memorials. How is it working? What is the role of the Commission? What can you do to improve its functioning?

Answer: I believe the main surge of memorial proposals has finally been stemmed. The ones under construction or awaiting final approval all conform to the guidelines approved by Congress, that is, they all meet the criteria of being of preeminent historical significance.

Two of these memorials, in fact, are to commemorate figures that date back to the Revolution; Thomas Paine and George Mason. One of the provisions of the guidelines requires the subject to have been dead for at least twenty-five years prior to the authorization of a memorial. While this was thought as one way to cut back on the number of proposals, nobody thought there would be efforts to honor people long since gone. I hope Paine and Mason are the exceptions and not the rule. Otherwise we could be in for a never-ending stream of monuments.

We will continue to demand most exacting standards for memorial design.

Question: The Monumental Core Framework Plan recently released by the National Capital Planning Commission has generated a lot of interest in the appearance of the National Capital Region. How does the Commission fit into that effort? Please comment on the current status of the Framework plan.

Answer: We were kept abreast of their studies as they developed. I believe it's useful every now and then to reexamine our long-range ideas and come up with some new ones if necessary. They have essentially reaffirmed our longstanding plans as embodied in the original L'Enfant design and later in the so-called McMillan Commission Plan, a position we have adhered to and one we are happy to see reaffirmed. By law, of course, they are restricted from addressing problems that are considered to be more local in nature and outside the narrow sense of the federal interest. That's a condition a lot of us have had trouble accepting. The notion that problems of a large city can be pigeonholed into separate planning for separate interests is seriously flawed. As we approach the bicentennial of the

National Capital, we should certainly take this opportunity to give a thorough look at the planning process.

In the meantime, we understand that the plan is to be circulated to the public on a nationwide basis for review and comment.

Question: What legislation or practical changes in the way planning bodies interact would be useful to encourage better coordinated planning of the National Capital Region?

Answer: There ought to be a single planning agency that has regional authority with teeth. This is especially necessary for the coordination of area-wide transportation matters which under the current circumstances differ widely by state, county, and the District of Columbia. While land use policies will always be difficult to coordinate for a variety of reasons, it is worth the effort if the scattershot aspects of current planning could be brought under the purview of a single regional body.

Question: How is downtown development in Washington D.C. coming? Do you see any turnaround for what is generally perceived to be a dying area? What role can, and does, the Commission have in helping make the downtown area more attractive to investment, citizens, and visitors?

Answer: We are neither planners nor soothsayers, but we see a lot of positive things happening downtown that signal an eventual turnaround. Several new private offices are underway, as well as two new buildings for the government: one for the Secret Service, the other for the FBI, in addition to the large Ronald Reagan Federal Triangle Building. The MCI Arena should have a very considerable impact, generating a lot of energy, especially at night and on weekends. The Shakespeare Theater is a great success as will be the Opera Company if the District Government allows it to happen. But our view is considerably different from some. Certainly it would appear that the area no longer can sustain the kind of merchandising associated with the scale of a major department store. Specialty shops, yes. Restaurants, yes. Bloomingdales and Nordstroms, not likely!

Any major undertakings of a public nature such as the arena or convention center would be reviewed by the Commission with the purpose of ensuring a high level of design for not only the specific structure but also for its urban environment. This is essential to attracting new investments in the downtown area.

Question: During the 50th anniversary year of the invasion of Normandy in World War II, you reported on the efforts of a private foundation to erect a so-called Wall of Liberty. I understand it has not been built yet, and there are many unhappy veterans who donated money for the memorial. Has anything happened since we last discussed this?

Answer: It's a sad story. A lot of money was raised from a lot of individual donors, but it was poorly managed and otherwise misspent: there was nothing left for the memorial. The former head of the effort has been replaced by Pierre Salinger, and I've been advised that he is currently heading up an effort in this Congress to get funds to build the memorial. I believe his goal is two million dollars. If he's successful with his legislative endeavor, and I certainly think it's a worthy cause, the money will be turned over to the American Battle Monuments Commission which would take responsibility for the construction. At that stage we would be involved in approving the design, as we do for all overseas U.S. military memorials.

Question: Provide a list of the Commission members, as well as the dates that their terms began and expire.

Answer: J. Carter Brown, Chairman, October 1994 - October 1998
Harry G. Robinson, III, Vice-Chairman, December 1994 - December 1998
Rex Ball, October 1994 - October 1998
Carolyn Brody, October 1994 - October 1998
Barbaralee Diamonstein-Spielvogel, February 1996 - February 2000
Eden Rafshoon, October 1994 - October 1998
Susan Porter Rose, April 1993 - April 1997

Question: Provide a five-year table on administrative services paid to the Department of the Interior.

Answer: Administrative Services paid to the Department of the Interior (in thousands):

Fiscal Year	1992	1993	1994	1995	1996
Charges	$34	$39	$39	$39	$39 (est)

Question: Last year you received level funding. What has been the impact of your absorbing uncontrollable costs? What would be the impact of receiving a ten percent reduction below that level?

Answer: Further reductions in the Commission's appropriations would be like squeezing blood from a turnip - there's not much there to start with.

Consolidation of agenda items into longer and fewer meetings is about the only means available to absorb increased costs without an increase in appropriations. The downside of this approach is the delay it is likely to cause certain projects. For example, the MCI Arena is on a so-called "fast track" and much of the design is being done while construction is underway. Any delays could prove very costly, so a few dollars saved by eliminating a Commission meeting could end up costing someone a lot more, and that someone is going to be the tax-payer in public projects.

Question: What role has the Commission had in military construction and design projects during the past year?

Answer: In the District a number of military construction projects have been reviewed for the Anacostia and Bolling sites, the Navy Yard, Naval Observatories (old and new) and Ft. McNair. In Virginia, Ft. Myer is involved in both renovation and new construction as is the Pentagon and the adjoining Arlington National Cemetery. Of particular interest in Arlington was the memorial erected there during this past year to commemorate the loss of life in the Pan Am 103 disaster.

Question: How was the Commission involved in the site selection for the World War II Memorial? Now that the site has been chosen, what is the next step and how will the Commission fit in?

Answer: It was the Commission that initially suggested the Rainbow Pool area for the World War II Memorial as an alternative to a spot in Constitution Gardens, a location that was thought to be insufficiently commanding in its relationship to other major memorials.

The American Battle Monuments Commission is the lead agency with overall responsibility for design and construction. As to the design, I believe they are doing something quite innovative by asking the General Services Administration to manage a competition under what is generally referred to as GSA's Design Excellence Program. It's the same method employed in the federal courthouse program which as you know is an enormous undertaking. They have had remarkably good results from what I've heard, so it makes sense to utilize their experience and know-how. We will be kept apprised of progress, but our formal role as a reviewing agency precludes us from the architect selection process simply because it might appear to conflict with rendering objective and unbiased advice.

Question: The Korean War Memorial seems to have been well received. What was the role of the Commission in its design?

Answer: The design for the Korean War Memorial presented problems that were particularly difficult to resolve. The initial design was chosen in a competition. As the review process progressed, it became clear that a number of features did not work and had to be changed, a conclusion that was unacceptable to the winning team of landscape architects who subsequently resigned. The Washington firm of Cooper Lecky Architects took over the project and saw it through to completion after an extensive search for an acceptable solution. The Commission worked with them and Vermont sculptor Frank Gaylord every step of the way. The final array of combatants, their uniforms and their individual demeanor was subject to exacting inspection and review of many iterations.

Question: The FDR Memorial should be ready for dedication in just one more year. What has been the role of the Commission in its design?

Answer: The Commission's role has been long and complicated. The initial efforts to secure a design were unsuccessful. The winning design selected in a major architectural competition would have seriously detracted from other nearby memorials and was rejected by the Commission. Other attempts followed as the result of direct solicitation of designs by the FDR Memorial Commission but were rejected for similar reasons. Not until 1979, when landscape architect Lawrence Halprin developed the original concept for the current design, was the Commission sufficiently persuaded to give its approval, and then only after substantial reduction in size had been achieved and surrounding roadways partially restored. More recently, the Commission has focused on details of the sculptural elements, a process that has involved inspection of work in progress at the artists' studios and foundries.

Question: The Pennsylvania Avenue Development Corporation was recently terminated and its operations split up among a number of agencies. Does the Commission have a role here?

Answer: The Shipstead-Luce Act, passed by Congress in 1930, requires the Commission's approval of all private construction along the length of Pennsylvania Avenue from the Capitol to the White House. Obviously we will continue to exercise our authority according to law. The coverage, however, only extends to the Avenue itself which leaves large parcels not owned by the government outside the Commission's jurisdiction, including the periphery of the National Portrait Gallery and the Tariff Commission at 8th and F streets. Although GSA currently has responsibility for some properties, it may dispose of or lease them to private developers. Once in the private domain there would be no design review by an agency specifically authorized to perform such functions. This is something that Congress ought to address.

Question: Your charter calls for the publication of research materials on buildings, areas, and plans in the Washington D.C. area. Please provide a list of major publications during the past two years, the cost of development and production, and a list of anticipated works for FY 1997.

Answer: Funding limitations over the past two years have curtailed the publication of new material to some extent. A popular publication on the history of The Georgetown Historic Waterfront was updated and reprinted in FY 1994, and an expanded edition of A Brief History 1910-1995 covering a detailed report of Commission activities over the last five years will be printed anew sometime this summer. The Georgetown Historic Waterfront printing cost $12,000 and A Brief History 1910-1995 is estimated to be the same. There are no plans for further publications at this time.

Question: Federal landscaping efforts play a critical role in the overall appearance and functioning of the Capital region. What expertise and role does the Commission bring to landscape architecture efforts?

Answer: The concern for landscape design has been integral to the Commission's deliberations since its inception in 1910. The McMillan Commission, or Senate Park Commission Plan of 1901 which has led to the creation of the Monumental Core as we know it today, is essentially a landscape design in the broadest sense of the word. Over the years a number of distinguished landscape architects have served on the Commission, including Frederick Law Olmsted, Jr. The staff also has considerable experience in reviewing landscape proposals. The secretary of the Commission has served on a national design awards jury for the American Society of Landscape Architecture, and has also been involved informally with the designs for the proposed National Garden, as has the Chairman.

Question: The President recently provided guidelines concerning the use of native plants in Federal landscaping efforts. What was the role of the Commission in this effort? What opportunities are there in the Capital for enhancing native plantings and utilizing plantings for aesthetic as well as conservation purposes?

Answer: The Commission has long urged the use of native plant materials in the development of landscaping for the National Capital. While it has had no role in the President's recent guidelines on federal landscaping efforts, it wholeheartedly supports the initiative.

Virtually every project presents an opportunity for implementing a policy on native planting as part of an integral landscape design. The Commission has recently worked with the Department of Energy on the development of a park next to DOE headquarters on Independence Avenue that implements this policy as well as featuring up-to-date technology on energy conservation.

Question: How have the financial difficulties faced by the government of the District of Columbia affected your interactions?

Answer: There has been little direct effect on the Commission itself. Applicants from the private sector filing for building permits under the Old Georgetown Act or the Shipstead-Luce Act have reported some delays on getting paperwork processed, but these delays have not extended to the Commission. The staff has made a concerted effort to help applicants and the offices of the District government wherever possible so as to avoid delays.

Indirectly, we are saddened to see parks and landscaping under District authority suffering from inadequate maintenance, and the current condition of the District Building on Pennsylvania Avenue should be a concern to us all.

Question: What administrative costs do you cover for the National Capital Arts and Cultural Affairs appropriation?

Answer: Both the Department of Interior, Office of Fiscal Services, and the Commission have absorbed the minimal costs that could be charged to the administration of the National Capital Arts and Cultural Affairs program. At no time have any grant funds been diverted to cover administrative services. Because of the simplicity of the system and the limited number of applicants, the process of evaluating applicants and distributing grants is unencumbered with red tape and accomplished with relative ease.

Question: What have been the impacts of the reduction in this account from the FY 1995 level?

Answer: There are nineteen grantees, (one more than in FY 1995), with an average grant reduction of 24.3%, a substantial difference for operating a small organization.

Question: What would be the impact of an additional ten percent reduction below the FY 1996 conference action?

Answer: Grants would be reduced by more than 30 percent below the FY 1995 operating budget level of grantee organizations.

Question: Provide a list of the grant recipients for 1995, their operating income, the amount of each grant, and the grant amount as a percentage of the grantee's total income. If the awards have been made for FY 1996, please provide that information as well.

Answer: See attached lists for FY 1995 and for grants awarded in FY 1996 - three million dollars - to date, half of the conference action level.

Question: What are the criteria for receiving grant funding?

Answer: Public Law 99-190 states that non-educational, non-profit organizations which are primarily located in the District of Columbia and engaged in performing or exhibiting the arts and have an annual income, exclusive of federal funds, in excess of one million dollars for each of three years prior to the application, may be considered. Both the law and the guidelines detail these requirements and are included as a part of the application documents.

Question: Do you expect the number of grantees to increase in the near future?

Answer: Only if the present trend continues. There has been one additional organization qualified every year or two.

Question: How is the grant amount determined for each grantee?

Answer: The grant amounts are based on a formula established by law. Seventy percent of available funds will be distributed equally among eligible organizations submitting applications, the remaining thirty percent will be distributed based on the organizations' annual income, exclusive of federal funds, compared to the combined income of all eligible organizations. No organization may receive a grant of more than $500,000 and no grant may exceed twenty-five percent of an institution's annual budget.

Question: What legislative changes would be needed to make the awards competitive? What would be the advantages and disadvantages of such a change?

Answer: In a sense the awards are now competitive, based on income size. To make the awards competitive in other areas would necessitate the establishment of new criteria. This most likely would end the present program's administrative simplicity and no-cost operation.

Question: What matching funds do the grantees add to the federal contribution?

Answer: All grantees are required to raise at least one million dollars of non-federal funds to be eligible. The grants are then calculated on the basis of this income.

Question: What is the net economic benefit to the community of the programs funded through this appropriation?

Answer: The District of Columbia, with respect to support of its nationally-significant institutions that do not receive federal support for their programs, is at a particular disadvantage. There is no state arts council; the city government is in dire financial straits; and the industrial base is almost non-existent, with its overwhelmingly predominant industry being the government. Some twenty-one million visitors are estimated to come each year from all fifty states and abroad. Private institutions such as the Corcoran, the Phillips, or the National Symphony do not have the economic base found in other cities. To make up for this lack, the Congress wisely enacted this very modest program that would help compensate for the lack of local support opportunities and still leave the primary funding in the private sector. The cultural institutions of this city are an important part of the Capital's life, not only as it serves our citizens, but also the many visitors from elsewhere in the country and abroad; to diminish this most important aspect of Washington life would be unfortunate.

NCACA GRANTEE LIST 1995

AMERICAN ARCHITECTURAL FOUNDATION
income: $2,710,924 grant:$363,654 = 13.4%
ARENA STAGE, WASHINGTON DRAMA SOCIETY
income: $8,529,500 grant:$500,000 = 5.8%
CAPITAL CHILDREN'S MUSEUM, NATIONAL LEARNING CENTER
income: $2,687,809 grant:$363,040 = 13.5%
CORCORAN GALLERY
income: $9,168,965 grant:$500,000 = 5.4%
FOLGER SHAKESPEARE LIBRARY
income: $5,487,061 grant:$437,370 = 8%
FORD'S THEATRE SOCIETY
income: $4,968,046 grant:$423,590 = 8.5%
KENNEDY CENTER FOR THE PERFORMING ARTS
income: $50,535,000 grant:$500,000 = 1%
MERIDIAN HOUSE INTERNATIONAL
income: $1,673,478 grant:$336,184 = 20%
NATIONAL BUILDING MUSEUM
income: 2,531,063 grant:$358,877 = 14%
NATIONAL MUSEUM OF WOMEN IN THE ARTS
income: $6,301,702 grant:$459,004 = 7.3%
NATIONAL SYMPHONY ORCHESTRA
income: $6,913,115 grant:$475,240 = 6.9%
PHILLIPS COLLECTION
income: $3,958,512 grant:$396,782 = 10%
SHAKESPEARE THEATRE
income: $5,426,085 grant:$435,753 = 8%
STUDIO THEATRE
income: $1,380,274 grant:$328,319 = 23%
TEXTILE MUSEUM
income: $2,015,834 grant:$345,196 = 17.1%
WASHINGTON BALLET
income: $2,213,952 grant:$350,457 = 15.8%
WASHINGTON OPERA
income: $8,911,516 grant:$500,000 = 5.6%
WASHINGTON PERFORMING ARTS SOCIETY
income: $5,078,838 grant:$426,532 = 8.4%

NATIONAL CAPITAL ARTS AND CULTURAL AFFAIRS PROGRAM - 1996
DISTRIBUTION OF $3,000,000

Institution	*Income*	*Grant*
American Arch. Foundation	$2,292,424	$128,305 = 5.6%
Arena Stage	$7,879,705	$171,636 = 2.2%
Children's Museum	$2,335,995	$128,643 = 5.5%
Corcoran Gallery	$10,352,066	$190,810 = 1.8%
Folger Library	$5,704,031	$154,763 = 2.7%
Ford's Theatre	$4,406,708	$144,702 = 3.3%
Kennedy Center	$51,467,000	$250,000 = .5%
Meridian House	$2,496,544	$129,888 = 5.2%
Nat. Building Museum	$2,646,245	$131,049 = 4.9%
Nat. Museum Women Arts	$5,588,904	$153,870 = 2.7%
Nat. Symphony Orchestra	$17,085,000	$243,027 = 1.4%
Phillips Collection	$4,700,157	$146,978 = 3.1%
Shakespeare Theatre	$5,982,524	$156,923 = 2.6%
Studio Theatre	$2,249,662	$127,973 = 5.7%
Textile Museum	$2,351,275	$128,761 = 5.5%
Washington Ballet	$3,155,018	$134,995 = 4.3%
Washington Opera	$11,699,992	$201,264 = 1.7%
Wash. Performing Arts Soc	$5,391,906	$152,343 = 2.8%
Choral Arts Society (new)	$1,746,337	$124,070 = 7.1%

Testimony of Lawrence J. Wilker
President, John F. Kennedy Center for the Performing Arts
to the House Appropriations Subcommittee on Interior and Related Agencies
March 27, 1996

On behalf of the Board of Trustees, I am pleased to submit to the Subcommittee the FY1997 budget for appropriated funds for the John F. Kennedy Center for the Performing Arts, the nation's performing arts center, and a living Presidential memorial. The Center's FY1997 budget justification includes $10.9 million, an increase of $500,000 over FY1996 request levels, for facility Operations and Maintenance, and includes $9 million for Capital Repair, an amount even with the FY1996 request.

The Center will require a 4.8 percent increase for its Operation and Maintenance program to compensate for (A) unavoidable rate increases in electricity and other utilities, (B) the phased elimination of an extraordinary backlog of minor repair of the building (now under study and estimated to be a minimum of $7-$8 million), and (C) increased preventive facility maintenance, designed to reduce costly capital repairs in the outyears, and further buildup of the minor repair backlog. This budget actually shrinks the amount allocated to personnel and benefits while including required pay-raise adjustments, thereby allowing the Board to begin to allocate valuable appropriated resources to a proactive program of preventive maintenance, and elimination of the minor repair backlog.

The FY1997 Capital Repair and Rehabilitation budget is level with the FY1996 request. The planned FY1997 program is part of a 25-year Comprehensive Building Plan, and will address critical building systems and life safety and accessibility issues. To meet the Plan objectives, the Kennedy Center will require the authorized amount of $9,000,000.

Financial and Performance Measurement Objectives

Since assuming control of building operations, maintenance, and capital repair, the Board has implemented several measures to streamline operations and increase efficiencies in all aspects of the appropriated fund management. The Board has contracted with other government agencies for contract and financial management services, and has retained an in-house contracting officer to supervise and facilitate contracting for goods and services. The Kennedy Center Department of Finance has established necessary accounting and bookkeeping systems required for the receipt and expenditure of appropriated funds, and will continue to refine management reporting and procedures.

To further increase efficiencies and improve appropriated fund management, the Board is completing the following performance objectives for its appropriated fund operations:

- Performance standards are being developed for the maintenance and operation of the building, including benchmarks against which productivity, operational expense, patron and visitor satisfaction, etc., can be judged. The development of these standards are being initiated by incorporating industry standards and by the experience gained after two years of monitoring performance of this unique facility.

- Building repair response times are being reduced and cost controls are being achieved through a new work-order system.

- Cost-benefit analyses of useful service lives of equipment and fixtures will provide a rational basis for scheduled preventive maintenance and regular replacement.

Comprehensive Building Plan

As required by the P.L. 103-279, the Board completed on-time, in July, 1995, a Comprehensive Building Plan which for the first time in the history of the Center addresses the care and repair of the monument building over the course of the next 25 years. This plan will be updated annually. In the meantime, critical capital repair work progressed very well in FY1995 and FY1996, with the Board obligating in FY1995 alone, $36 million in funds previously appropriated to the National Park Service. The Board also has underway a Facilities Management Assessment which will provide for increased efficiencies in the maintenance and operation of the facility.

FY1997 Operations and Maintenance program

The Center is required to expend in the FY1997 budget approximately 3.1% more in personnel and related costs, due to Federal pay-raise assumptions. However, overall the Center's budget for Personnel and Benefits is below the FY1996 request. The Center in FY1997 will absorb some $200,000 in inflation costs in non-personnel Operations and Maintenance contracts and other functions. The increased non-personnel request for FY1997 provides for projected increases in utility rates, reduction of the extraordinary backlog of minor repairs, and increased preventive maintenance services.

Utility Rate Increases. The Center's electric utility provider, PEPCO, has implemented significant Maximum Demand Charge rate increases, effective July 11, 1995. The Board estimates that these increases will amount in an increase of approximately *$400,000 in FY1997* over the FY1995 actual amounts after adjustments for reduced energy and water consumption expected to accrue from current capital improvements.

This increase is anticipated *in spite of* significant energy-saving measures already implemented, including replacement of the Center's obsolete chiller, building automation systems scheduled for FY1996, and the replacement of fixtures with energy-efficient lighting. The FY1997 planned emphasis on preventive maintenance and minor repairs should further reduce outyear utility consumption. The Center also anticipates an approximately $60,000 increase in water and sewer charges in FY1997.

Building Emergency and Minor Repairs and Replacement. Condition audits conducted as part of the Center's Comprehensive Building Plan identified a backlog of a minimum of $7-$8 million in regular building and equipment maintenance and minor repairs. Most building systems, as well as interior and exterior architectural elements, were not adequately maintained during the building's first 25 years, resulting in this backlog. In some cases, equipment and systems must be repaired to keep them functional in the short term, even though they may be replaced later as part of the Capital Repair program. Recent examples include an emergency repair of the antiquated fire alarm system and a temporary emergency repair of the chillers two years before they were scheduled to be replaced These stop-gap measures require inordinate amounts of facility maintenance personnel time, plus supplies, equipment, and outside repair contracts. Consequently, building minor repair expenses in the Center's Operations and Maintenance budget will continue to be higher than they are expected to be after capital repairs, restoration and renovation are completed.

Preventive Facility Maintenance. To maintain current levels of operating expenses and reduce future minor and capital repairs, a major emphasis has been placed on proactive preventive maintenance of all components of the building and grounds. The increase included in the FY1997 budget provides for specialty service contracts, supplies/materials, and equipment for the preventive maintenance work which will be routinely scheduled by an automated facility management system.

FY1997 Capital Repair and Rehabilitation program

In Stage I of the Comprehensive Building Plan, FY1995 - FY1999, the capital program will address several critical remedial actions, particularly life safety and accessibility projects needed to bring the structure up to current standards and codes. In addition to the annual appropriation of approximately $9 million, an unobligated balance transferred from the National Park Service to the Board of Trustees will be fully obligated by the end of FY1996. Work in FY1997 and beyond will require the full authorized appropriation of $9,000,000. The Comprehensive Plan did not take into account $3,000,000 rescinded by P.L. 104-19 from unobligated capital funds from prior years. The effect of the rescission will be felt in delaying the start of projects, or phasing large projects over multiple years.

Board Accomplishments

When we last appeared before the Subcommittee on March 3, 1995, the institution was in the midst of implementing the requirements of P.L. 103-279 which provided for control and management of the facility to transfer from the National Park Service to the Board of Trustees. It has been a year of great accomplishments for the Board, including:

- Completion, on time, of a comprehensive plan for the care and repair of the monument building over the next 25 years.

- Obligation in FY1995 of $36 million from available start-of-year balances for critical capital repair, including complete replacement of the leaky roof and roof terrace, and replacement of obsolete building systems. This unprecedented activity was executed under the direction of a very small in-house staff, and made possible through efficient arrangement with other government agencies, most notably the National Park Service, Army Corps of Engineers and the Defense Contract Management Command (DCMC).

- Initiation of a complete Facilities Management Assessment which will result in the development of performance standards for the maintenance and operation of the building, including standards against which productivity, operational expense, patron and visitor satisfaction, etc., can be judged. In short, we will be applying commercial and industry standards and principles to the operation of the Presidential monument.

- All of these activities are executed under one authority, the Board of Trustees, and overseen by a special committee of the Board, the Operations Committee.

The Center is a federal/private partnership. The building, a federal asset, is maintained and operated with appropriated funds, and the artistic and educational programming which enliven the Presidential memorial are presented by the Board with funds raised from private and government sources. It is the local, national, and international performing arts and education programming that distinguishes the Kennedy Center from all other Presidential monuments. Private fundraising for these activities in FY1995 broke all past records.

Since the Subcommittee held a hearing on the Kennedy Center's funding last March 3, the Center's Chairman, James D. Wolfensohn, has become President of the World Bank, and has stepped down as Chairman of the Board of Trustees of the Kennedy Center. His successor, James A. Johnson, is expected to assume the position of Chairman on May 1. As President and Chief Operating Officer, I continue to provide operational leadership to the Center, including programming and administrative responsibilities encompassing both appropriated and non-appropriated fund activities.

The Board has met all goals for obligating available balances to address the significant and most urgent conditions of the facility. Beyond this, the Board is conducting a thorough review of all appropriated fund operations, with a goal of realizing greater efficiency and implementing a proactive minor repair program. We will continue to keep the Subcommittee informed of these activities.

In its 25th anniversary season the Center has a great deal to celebrate. Aside from an unprecedented year of activity in presenting the finest in the performing arts on our stages and in communities across the country, the Center realized a small budget surplus for each of the last two years. Fundraising in FY1995 reached an all-time high. The Center's leadership in the arts in education reached teachers and students in all 50 states, and the number of new programs created for young people and teachers as a result of the Center's presence in communities was never higher.

The Board of Trustees and the Congress can be very proud of the results of its new partnership at the Kennedy Center. I welcome the opportunity at your request to provide additional information for the Subcommittee's hearing record on the activities of the Board since the passage of P.L. 103-279. Thank you for your consideration of the Center's FY1997 funding needs, and for your past support.

House Interior Appropriations Subcommittee
questions for John F. Kennedy Center for the Performing Arts on FY1997 budget

Answers submitted May 13, 1996

1. Your budget justification contains an operational increase of $569,000. Should the subcommittee be unable to provide this increase how will you absorb these costs and what impact will this have on your programs and your staffing levels?

The increased operations and maintenance account request for FY 1997 provides for projected increases in utility rates, reduction of the extraordinary backlog of minor repairs, and increased preventative maintenance services.

The increase required to cover electrical, water and sewer rate increases is unavoidable. Therefore, should the subcommittee be unable to provide this increase, the Center would further defer action to address its long list of scheduled preventative maintenance and minor repair. This would result in unavoidable further increases in building operations and construction costs and possible curtailment of operations.

2. How much of this increase are fixed costs versus maintenance request?

Fixed Costs: $204,000 The Center's electric utility provider, PEPCO, implemented significant rate increases, effective July 11, 1995. While the charge per kWh has increased by only about 2.3 percent, the Maximum Demand Charge increased by 53 percent, and the Peak Charge increased by 18 percent. The Kennedy Center now estimates that these increases will amount to a minimum of $204,000 in additional costs in FY1997, after adjustments for reduced energy and water consumption expected to accrue from current capital improvements, including new chillers and lighting retrofit.

Maintenance Costs: $ 365,000 The remainder of the requested increase is distributed between increased necessary preventative maintenance services, $100,000; and $265,000 for a stepped-up program to reduce the Center's significant backlog of critical repair projects, as follows:

Preventive maintenance services: Improved maintenance of the elevators and escalators is absolutely required, as has been confirmed in a recent study by Leach, Bates & Associates. In the current fiscal year, elevator maintenance costs are $64,000 greater than budgeted. The increase will also allow the Center to provide for maintenance contracts on the building's new chillers.

Building Emergency and Minor Repairs: Subsequent to the condition audits performed as a basis for the Center's July 1996 Comprehensive Building Plan, a more detailed study by our consulting architects and engineers has revealed a backlog of nearly $12 million in regular building and equipment maintenance and minor repairs. At the current rate of funding, elimination of this backlog will have to be stretched out over 15 years. In order to accelerate the rate of repair and avoid significant additional costs which attend delay, a total of $1.3 million is budgeted in the FY 1997 request. The increase of approximately $265,000 will allow the Board to begin to reverse the emergency, stop-gap manner in which systems and equipment are now kept functional.

3. Your FY 1997 budget request actually contains a decrease in personnel expenditures. What management actions did the Center take that led to these results?

The FY1997 expenditures for personnel under the operations and maintenance function are reduced due to a reduction in personnel by 3 FTE associated with abolishment of the Center's health unit in FY1996.

4. What is the status of the $36 million unobligated balance for critical capital repairs the Center inherited from the National Park Service?

$3.0 million of these funds were rescinded in P.L. 104-9. The balance of funds transferred now have been obligated, with appropriate provision for prudent reserves.

5. If there is a balance, will it be expended by the end of this fiscal year?

There is no balance.

6. What specific capital projects were completed with these funds?

In addition to associated planning, design, construction supervision and project management expenses, the construction projects include: replacement of leaky main roof and roof terrace; repair of obsolete cooling coils; replacement of chillers; replacement of obsolete dimmer systems; repair of plumbing systems and fan starters; basic security controls and systems; and building automation systems.

John F. Kennedy Center
page 3 of 6

7. What outstanding "critical repair" projects remain?

A complete description of critical repair projects is presented in the Kennedy Center Comprehensive Building Plan which was provided to the subcommittee upon its completion in July, 1995. Completion and periodic update of this plan is required under the Kennedy Center Act Amendments of 1994. The plan will be updated on an annual basis. Projects planned for Stage I of the Comprehensive Building Plan (FY 1995 through FY 1999) include the following:

Rehabilitation of the Concert Hall auditorium to meet life safety and ADA requirements; other interim interior accessibility modifications; repair to the leaky service tunnel and drive, including waterproofing of the electrical vaults and repairs to the air intake ducts; replacement of existing, obsolete fire alarm system with a new fire alarm system; construction of a security control center and extension of the security system; provi
of fire separation between the garage and plaza level; provision of panic hardware an
correction of serious egress deficiencies at stairs and exitways; partial phased renovat
of existing office and support space; memorial exhibits and signage; renovation of garage ventilation and installation of garage piping insulation; restoration of site and site signage; energy retrofit of heating systems; renovation to correct life safety and accessibility deficiencies in the Opera House auditorium.

8. How many of these projects fall into the category of critical health and safety?

The majority of repairs in the Comprehensive Building Plan, Phase 1, are directly related to addressing critical health and safety issues, including bringing the building up to code for accessibility, life and fire safety, and egress.

9. How many National Park Service FTE's have been retained by the Kennedy Center?

55 FTE transferred to the Kennedy Center at the start of FY1995. Number of FTEs authorized has been reduced to 52 in FY1997.

10. At the present level of funding, how many years will it take to be in complete compliance with ADA?

According to the Comprehensive Building Plan of July, 1995, it will take approximately 15 years to bring the building up to current accessibility and other life safety standards.

11. When will the garage project be complete?

The current phase of the restoration of the parking garage structure, under supervision of the National Park Service, is scheduled for completion by March, 1997. However, work related to other critical repair projects will take place in and around the garage, including security system repairs where overhead coil doors will be installed at all entrances and exits of the garage, and duress alarms will be installed in the garage. This work is expected to be complete by December, 1997. Other work in and around the garage includes minor repairs to the miscellaneous concrete elements not included in the major restoration work, repair of the dysfunctional garage ventilation system, installation of plumbing insulation, installation of signage and directional lighting to aid exiting, painting to improve lighting levels for garage security, and installation of CCTV monitoring and other security devices. All work associated with the interior of the garage is planned for stage I of the implementation plan. Repair and replacement of the exterior marble panels of the parking level A enclosure and the plaza overhang will be deferred to Stage II .

12. How many services are contracted out to the private sector and what is the management rationale for taking this action versus hiring full time federal employees?

There are numerous companies providing services to the facility and performing minor repair work. This private sector activity for FY 1997 is budgeted for $4.6 million of the total operations and maintenance request, approximately 43 percent of the amount requested. The major services contracted out include janitorial, cleaning, security and emergency medical services, elevator maintenance, chiller and AC unit maintenance, other specialty equipment maintenance, and seasonal grounds maintenance. The minor repair work contracted out includes repairs to electrical and mechanical systems, minor space modifications, carpet repair, marble repair, painting, lock repair, and other miscellaneous repairs to the facility.

Were these facility services and repairs performed by proprietary full time appropriated fund employees, the size of the appropriated fund work force required at the Kennedy Center could be expected to reach an estimated 114 FTE. Facility service contracts are more cost effective than performing the services with full time proprietary personnel for several reasons: private sector personnel practices more readily allow a mix of full- and part-time personnel and expansion or reduction of the work force to adapt to dynamics of facility work, personnel with specialty skills and expertise are available when needed for only the time required -- avoiding the employment of full-time but under-utilized specialty staff, personnel compensation and performance levels are determined competitively, goods and support services are purchased by specialty contractors in greater volume and lower cost, and the additional administrative costs associated with in-house services are avoided.

13. What programs are funded with non-appropriated funds?

As per the Kennedy Center's authorizing statute, "No funds appropriated pursuant to this section shall be used for any direct expense incurred in the production of a performing arts attraction, for personnel who are involved in performing arts administration (including any supply or equipment used by the personnel), or for production, staging, public relations, marketing, fundraising, ticket sales and education." These performance-related activities are funded with non-appropriated funds.

14. How do you plan to develop performance standards for maintenance and operations?

The performance standards are being developed by the Galbreath Company, a major real property management company, and Technical Facility Management, Inc., a facility systems management consultant in association with Wiss, Janney & Eltsner, architects and engineers, as part of that firm's assessment of facility management operations.

15. Did you institute your own finance system when you separated from the Park Service or did you continue the one in place prior to the separation?

The Board elected not to use the NPS accounting and payroll systems and retained the General Services Administration for accounting, Federal financial reporting, payroll and making payments to vendors and contractors. The GSA uses the NEAR system for this purpose.

In addition, the Board maintains an internal tracking system for appropriated funds which is reconciled monthly with the GSA accounting information. Under this arrangement, the Board is in full control of its appropriated funds enabling it to make solid management and planning decisions. Financial statements on Federal and trust expenditures are also reviewed by the Finance Committee of the Board of Trustees every quarter.

16. Since you are going to perform a life cycle operations review for the Center, have you investigated the possibility of converting from all electric to a more cost effective energy source such as gas?

Yes. Prior to initiating the replacement of the original (1971) failing, obsolete, and inefficient chillers in the Center's central refrigeration plant; a comprehensive study of alternative cooling technologies and energy alternatives was made by Wiss, Janney, Elstner Associates, architects and engineers, and Environmental Systems Design, mechanical/electrical engineers. The study found that none of the energy alternatives for cooling could be obtained at less cost than replacing the existing chillers with highly efficient and compact electric chillers of optimal capacity. In connection with the preparation of an energy conservation plan, Environmental Systems Design is currently evaluating natural gas as a fuel source for electrical heating systems.

--end--

TUESDAY, APRIL 23, 1996.

SMITHSONIAN INSTITUTION

WITNESSES

I. MICHAEL HEYMAN, SECRETARY, SMITHSONIAN INSTITUTION
CONSTANCE B. NEWMAN, UNDER SECRETARY
J. DENNIS O'CONNOR, PROVOST
L. CAROLE WHARTON, DIRECTOR, OFFICE OF PLANNING, MANAGEMENT AND BUDGET
RICHARD H. RICE, JR., SENIOR FACILITIES SERVICES OFFICER
MICHAEL H. ROBINSON, DIRECTOR, NATIONAL ZOOLOGICAL PARK

OPENING REMARKS

Mr. REGULA [presiding]. Well, we'll get the committee hearing started. We're happy to welcome you, Dr. Heyman, and hear the story of one of America's favorite institutions.

Mr. YATES. Greatest institutions.

Mr. HEYMAN. Thank you.

Mr. REGULA. Your full statement will be made a part of the record. Any summary that you'd like to share with the committee will be very appreciated.

Mr. HEYMAN. Thank you very much, Mr. Chairman. Good morning. It's very nice to be here. Mr. Yates, it's a pleasure to see you also.

First, I'd just like to remind you who is at the table. Richard Rice, who is our Senior Facilities Services Officer, Dennis O'Connor, the new Provost of the institution, Constance Newman, of course, the Under Secretary, and Carole Wharton, who is the Director of Planning, Management and Budget. Two of us are planning to speak, myself and Mr. Rice. We're all here ready to answer questions.

I am happy to have had the opportunity——

Mr. YATES. Connie Newman isn't going to answer any questions?

Mr. HEYMAN. Yes. She will too.

AMERICA'S SMITHSONIAN

I want to talk just briefly about the excitement of this 150th anniversary and the whole conception that is getting larger of the Smithsonian without walls. It's really a concentrated push. The cornerstone of this is the traveling exhibition, which I'm happy will be both in Columbus, Ohio, and in Chicago during its tour. So you will have an opportunity there to see it. I am very grateful, Mr. Chairman, that you were there to help inaugurate it in Los Angeles. We were in Los Angeles for five and a half weeks. We had about 320,000 visitors. The only complaints that we heard were that people had to stand in line. It was difficult to get in because of the crowd. In part that was a problem that we had not anticipated. We thought the flow-through would be much more rapid, but people wanted to stay there longer than we thought. They really stood for long periods of time and looked at some of the objects on display. They must have been bringing to those objects quite a bit of their own sense of history and their own information.

Mr. YATES. Does the exhibit have a catalogue?

Mr. HEYMAN. Yes. It does. We have not given you that, but we will make that available. It's a fine catalogue.

Mr. REGULA If you'll yield, Mr. Yates, I was at the opening in L.A. It's a great exhibit.

Mr. YATES. I understand it's wonderful.

Mr. REGULA. In fact, you can't get all the school groups in that want to come in, as I understand it.

Mr. HEYMAN. Well, if I remember properly in Los Angeles, we had 45,000 school children, all of whom had been prepared to some extent or another with regard to what they would see. We had some printed materials. We had a teacher's night there, and we had over 3,000 teachers who had come to see the exhibit. Plus the fact that we brought a number of scholars from the Institution, either curators or people who do research, who gave lectures in a variety of places, including public schools and in libraries and in university settings. We're hoping to be able to continue that every place we go.

Mr. REGULA. So you have an outreach.

Mr. HEYMAN. Real outreach, yes. We have real outreach.

Mr. REGULA. How is Kansas City going? It is open right now.

Mr. HEYMAN. It is the same kind of a story as Los Angeles. About 12,000 a day go through it. When we opened a couple of weeks ago in Kansas City, before anybody had seen it, there were already 98,000 reservations. It's really extraordinary the kind of publicity that it's been getting, which has really informed so many people of its imminence and eminence. So people are in fact coming in droves.

Mr. YATES. It's the cardinal of exhibitions.

Mr. HEYMAN. It is.

Mr. REGULA. As I understand it, there's no charge except to ride the carousel.

Mr. HEYMAN. That's right. There is a handling charge if you want to reserve tickets through a ticket system, but otherwise, there's no charge for admission to the show. We do hope people will purchase much in the museum store, and so far, they have been doing well. Thus, we have been doing well.

Mr. REGULA. I want to tell you, Mr. Yates, the carousel is absolutely the most magnificent carousel you have ever laid eyes on. I don't know who did the animals and all the various features, but it is a beautiful piece of work.

Mr. HEYMAN. Well, it's just grand. We have also had one big CBS special—we will have our second one at the beginning of May. It's really a glorious TV show. It says a lot about our research activity, especially overseas. The next one will have some on research and will also be doing things with objects in the collection.

LOCATIONS OF SMITHSONIAN FACILITIES

Mr. REGULA. In how many different locations do you have permanent facilities, like for example, Panama and you have the National Zoo facility out at Front Royal where you raise the exotic animals for zoos around the country. How many different such locations are there?

Ms. NEWMAN. Let me just count it. I think it's six.

Mr. YATES. Do you consider Suitland a part of Washington?

Mr. HEYMAN. Six. It really depends on how you count. We've got approximately—it depends on again how you count it. We have 16 museums and galleries, some of which are obviously in New York. We have four major research institutes in different places, Panama, Cambridge, MA. Then the Cambridge operation has telescopes and settings in both Arizona and Hawaii.

Mr. YATES. You have one in Florida.

Mr. HEYMAN. We have Linkport in Florida, which is part of the Natural History Museum. So it's hard to count, but it's fairly pervasive in terms of location, especially of the research facilities. Then, of course, we have the large one at Front Royal, that's an adjunct of the Zoo and does an awful lot with exotic animals, including the nurturing of endangered species and then taking those endangered species out to their prior habitats and hoping they are going to re-propagate in those vicinities.

Then SERC obviously on the Chesapeake that does an awful lot of work on riparian matters.

Mr. REGULA. Do you still have the problem of the hunt down at Front Royal? I remember when Mr. Yates was chairman that we had the hearing on that subject.

Mr. HEYMAN. We did it again this year at SERC, but it's no problem as far as I know. Nobody has noted it. I wish that it would continue that way.

So part of this outreach is the traveling 150th exhibition and obviously the location of all of these.

SMITHSONIAN SESQUECENTENNIAL

The second thing we're going to do for the 150th is have a great big birthday party on the Mall. It's going to be quite elaborate. It's going to be on August 10th, which is the actual date of the anniversary of the passage of the statute creating us. I hope Members and staff and families think about coming, because it really will be a great party.

Mr. YATES. I don't know that you are going to get many, because I think August is the congressional recess period.

Mr. REGULA. Yes. Worse than that, it's the Republican convention. [Laughter.]

Mr. YATES. That's true.

Mr. REGULA. But there do have to be surrogates for the rest of us.

Mr. HEYMAN. Need I say less.

Mr. YATES. I hope to be in Chicago. August is the only month when it doesn't snow there. [Laughter.]

Mr. HEYMAN. I do want you to know that all of these are being funded by other than appropriated funds. So all of this is——

Mr. YATES. What all is being funded by other?

Mr. HEYMAN. The birthday party, the traveling exhibition are both funded—and the CBS specials—are all funded by other than appropriated funds.

Mr. YATES. Do we know who is funding them?

Mr. HEYMAN. Well our four primary partners, our four corporations, TWA, MCI, Intel, and Discover Card. We are busily trying to sign up a couple more, which will assure that we don't have to go into any kind of reserves.

Mr. YATES. Are they covering all the costs?

Mr. HEYMAN. Yes. All the costs.

Mr. REGULA. They each put up $10 million.

Mr. HEYMAN. That's right. Also if need be, we'll have the availability of our share of the coin receipts once the coin is distributed, hopefully in August. I thank you all for all of the work you did.

Mr. YATES. What do you mean by the coin receipts?

Mr. HEYMAN. These are the commemorative coins, Congressman Yates.

Mr. YATES. Oh I see. I thought it was admission charges.

Mr. HEYMAN. No, no, no. That's the surcharge that comes to us. So I hope we'll have enough funding to really go through with this.

ARTRAIN

Mr. REGULA. The Artrain is being sponsored at least in part by the private sector, is it not?

Mr. HEYMAN. Oh yes. But you know, the Artrain itself is run by a Michigan foundation. It happens that this year, the content of the Artrain is largely Smithsonian, so they are traveling our pictures. As we know, they will be in Wooster. It's going to be elsewhere in Ohio, too, but I can't remember where.

Mr. REGULA. Sydney.

Mr. HEYMAN. In Sydney, Ohio.

Mr. YATES. Is the Artrain a part of your 150th?

Mr. HEYMAN. Well, we're counting everything special.

Mr. YATES. But it isn't part of the exhibit itself?

Mr. HEYMAN. No. That's right. It's completely separate from the exhibition.

Mr. REGULA. Describe it a little bit for Mr. Yates.

Mr. YATES. Have you seen the Artrain?

Mr. REGULA. No.

Mr. HEYMAN. I don't know what's on it, but I'll find out.

Mr. YATES. You haven't seen it?

Mr. HEYMAN. No. I haven't seen it at all. It's an exhibition SITES put together. I haven't seen it.

Mr. YATES. SITES put together from your various exhibits?

Mr. HEYMAN. Well, let me look at this.

Mr. YATES. I wondered whether——

Mr. HEYMAN. The national tour is being sponsored by Chrysler Corporation I see in the press release by the Artrain itself. The Smithsonian Associates are involved with this. They began commissioning art works to commemorate Smithsonian Institution events. The scope of the collection has grown to include events of national significance. Examples of works include Mindy Weisel's *Flowers for a Country,* which is a 1991 painting commemorating the end of the

Persian Gulf War. Lowell Nesbitt's *History of Flight,* celebrating the opening of the National Air and Space Museum, Luis Cruz Azaceta's *Fragile Crossing,* marking the quincentennial of Columbus' voyage to America. Other art in the celebration includes Alexander Calder, Elizabeth Catlett, Chihuly, de Looper, Gilliam, Lawrence, Mejia, O'Keeffe, et cetera.

Mr. YATES. Don't skip over Nancy Graves, who just died.

Mr. HEYMAN. Well, I hope I haven't.

Mr. YATES. She's a wonderful sculptor.

Mr. HEYMAN. Yes. In any event, that gives you a sense of what this is.

Mr. YATES. You've got wonderful artists on this.

Mr. HEYMAN. Absolutely wonderful.

Mr. YATES. Has the American Family Association seen this?

Mr. REGULA. I can't answer that. How many cities are you going to go to, 100 is it?

Ms. NEWMAN. Thirty communities.

Mr. HEYMAN. That's 30 communities it will be at.

Mr. REGULA. Thirty? The Artrain?

Ms. NEWMAN. It will stay in each town one week.

Mr. HEYMAN. It will stay in each place one week. We have a list of all the places.

Mr. YATES. How do you do it? Do you go off on a spur track at the places where it's supposed to go?

Mr. HEYMAN. It goes off on a spur track. The railroads that are involved in each of the locations are subsidizing the traveling of the show itself, and providing the space for it to be stopped.

Mr. YATES. And the public goes through the train?

Mr. HEYMAN. That is correct.

Mr. YATES. By any chance do you have pictures of the way in which you have done the train?

Mr. HEYMAN. You see, we haven't done it. It really is a separate corporation, a non-profit that does it. I don't have pictures with me, but we surely can get them.

Mr. YATES. Well I don't mean pictures of the pictures, but I mean how——

Mr. HEYMAN. No, no. Pictures of how it's done.

Mr. YATES. How it's done. Sounds like it is fascinating. Are you getting crowds?

Ms. NEWMAN. Yes. It was very full when it was here in Washington.

Mr. HEYMAN. Oh that's right. It was here in Washington. I now recall it. It was very well attended here. I think it's a grand success in terms of the numbers of people who come.

Mr. YATES. Does that have a catalogue too?

Mr. HEYMAN. I'm sure it does.

Mr. YATES. Could you provide that?

Mr. HEYMAN. I certainly will.

Mr. REGULA. I think there are five cars, one for the staff, and three or four of the cars carry the actual exhibit, as I recall.

Mr. YATES. Security must be a problem, isn't it?

Mr. HEYMAN. I would suppose so. One of the reasons for my hesitancy in answering these questions is really the project itself is organized by somebody else. The contents of the project this time are Smithsonian pictures. But we don't travel it. It's not our train.

Mr. YATES. Who organized it?

Mr. HEYMAN. It is a foundation in Michigan, I believe, a not-for-profit that was founded in 1971 by the Michigan Council for the Arts to provide art exhibitions and cultural programs to communities in Michigan. In 1973, Artrain traveled outside of Michigan for the first time and toured eight states. Artrain was incorporated as its own not-for-profit corporation in 1975.

Mr. YATES. Do you know whether it has received a grant from the National Endowment for the Arts?

Mr. HEYMAN. I don't know. But I would be surprised if it hadn't.

THE YATES RULE

Mr. REGULA. Under the so-called Yates rule, a rule that was established many years ago, agencies coming before the committee should not ask another agency funded by the subcommittee for money. Well I don't know, if it applies as this is an outside corporation.

Mr. HEYMAN. I understand that. But this isn't——

Mr. YATES. As far as I'm concerned, the Yates Rule can be repealed. As of this moment, we'll consider it repealed.

Mr. HEYMAN. Please put that on the record, Mr. Yates. [Laughter.]

Mr. YATES. I will be glad to. I'm in conversation with Chairman Regula referring to the so-called Yates Rule under which agencies appearing for their appropriations before the Interior Subcommittee were precluded from asking other government agencies funded in the Interior bill for grants. The theory was that if they needed money, they should come to the committee for their money rather than going to other agencies for the needed funds.

As of this moment, I think conditions have changed a great deal. I suspect that this is the time to repeal the Yates Rule. Chairman Regula and I have voted in accord to repeal it. David Skaggs, I take it is favorable to it.

Mr. SKAGGS. I'd like to think about this. [Laughter.]

Mr. YATES. I suspected that.

Mr. REGULA. You might be interested to know that the communities that are getting Artrain also put in some money as a prerequisite to help pay the expenses. In our case, Wooster, Ohio and RubberMaid Corporation are supporting that project. I'm sure this is true in the other 30 communities that are going to get the train as well.

We have digressed a bit this morning, but this is part of the fabric of the Smithsonian. So, Mr. Secretary, we'll go forward.

SMITHSONIAN ELECTRONIC OUTREACH

Mr. HEYMAN. Let me just mention a couple more things about outreach that are not absolutely new, but they are at a much greater scale than previously.

The whole electronic outreach on the Internet now is a very substantial program.

Mr. YATES. Would you explain to the Members of the Committee what Internet is?

Mr. REGULA. And also what you are doing, because I think the program that is going to be part of the school system in the 16th District is a good example of the outreach that you are doing.

Mr. YATES. Some of us haven't grown up with computers.

Mr. HEYMAN. Well, it's really just a series of interconnections, basically.

Mr. YATES. On computers?

Mr. HEYMAN. On computers that permit us to post a bunch of information, in this case about 35 or 40 hours on something called a Home Page of the Smithsonian, and invite anybody who has the address or can find us through some index to come to and view what we have put on the Internet. So anybody who has a computer and a modem, and thus can get into the system itself, which is possible to do, has the opportunity to see whatever is on the Internet. We have one of the largest sites on the Internet.

Now in terms of——

Mr. YATES. How can we see that? I mean we have three or four computers in our office.

Mr. HEYMAN. We would be happy to come over and tune it in for you.

Mr. YATES. Do you need a computer of a certain value or strength in order to see this exhibition?

Mr. HEYMAN. Well, if you have a more powerful one, you can see graphics much more easily and much more rapidly. But words can be viewed and received through computers of lesser power.

Mr. YATES. We don't have the machines to do it in my office. We'll have to go over to the Smithsonian.

Mr. HEYMAN. In fact, you could probably visit this in the Speaker's office, because when we went on the Internet——

Mr. YATES. The Speaker has access to certain things that ordinary members don't. [Laughter.]

Mr. HEYMAN. We'll be very pleased to bring one over with a modem and give you a demonstration in your office, if you'd like that.

Mr. REGULA. Let me suggest that we'll arrange a demonstration for the Committee, and set it up in here.

Mr. HEYMAN. We would just be delighted.

Mr. REGULA. I think that, plus what you are doing in the outreach to schools is really significant in terms of sharing the Smithsonian on a very broad scale. I think as part of a demonstration, you could illustrate what you are doing. We had this three State project on interaction with schools.

Mr. HEYMAN. Right. We have a project right now called Natural Partners. It's at the Natural History Museum. It's making available lectures, where curators and other scholars, from three places, from Natural History, from the Zoo, and to some extent from the Smithsonian Environmental Research Center, lecture. They have materials. The first one was on squids. These are received in classrooms now in three states: Tennessee, Alabama and Mississippi, and soon to open in Ohio. Then it's interactive, because teachers and school children in the classrooms receiving this can ask questions of the lecturer. There will be discussion in real time between the lecturer and those inquiring.

So it's the beginning of more and more activity where you can really bring into classrooms activities that are occurring elsewhere. You really can have discussion on real time with regard to whatever the subject matter of the class is about. It gets better and better technically so you have fewer glitches and the quality of the images and the speed with which they can be received increases. It's obviously the wave of the future in terms of communication. Now there are maybe 30 million people ready to receive this. Five to 10 years from now, when there is a coalescence of television and this kind of technology, it will be what television has become.

Mr. YATES. No way you can move it up? I don't know that I'll be here in 10 years.

Mr. HEYMAN. Well I feel similarly. [Laugher.]

Mr. YATES. You're a kid.

LOANS OF COLLECTIONS

Mr. HEYMAN. Well, those are the kinds of things we're doing. I could mention more and more in the written statement, but I do want you to know that all of the kinds of things I am talking about, trying to get the Smithsonian out and not only in Washington, is very high on the agenda of the Institution. We're going to keep working on this. We're going to work on it in the potentiality of affiliations with museums, thus heightening the potentiality of loans of materials. Actually, we loan an awful lot of material now, most of it small. Most of it is coming from Natural History. Most of it is for research. But we're beginning to loan more artifacts of size, which both gets us out and makes our collections more accessible and helps now in a minor way, but hopefully in a major way in the future in terms of collection storage and care.

SMITHSONIAN RESEARCH

So those things are going on. But I don't want you to think that we're not continuing with a very vital research program because we are. As we all know in this room, the Smithsonian has been both a research institution, as well as an exhibiting and museum institution. Given my background, I think about it in terms of museums as the education and the research is the research. So it looks a lot like a university setting. Thus, Dennis and I feel very much at home in it.

Mr. REGULA. I see in your statement that you had pioneered on the yew tree, which produces taxol, which of course has become an important drug in the fight against cancer.

Mr. HEYMAN. That's right, sir. In addition to that, we're doing some very innovative work I gather in the kinds of gases that are used in MRIs.

Dennis, you know something about that. Perhaps you could——

Mr. O'CONNOR. Mr. Chairman, the significance of the yew tree is that not only is the concentration of the taxol-like drug higher, it can be harvested without sacrificing the tree. The other point that the Secretary mentioned, up at the SAO, the Astrophysics Laboratory in Cambridge, we're doing some work with what are called noble gases. They are stable gases such as xenon and helium. We are finding that when they are inhaled or placed in body cavities, they really enhance enormously the capacity to look at magnetic detail. So it's a much better imaging system.

Mr. REGULA. So a patient that was going to have an MRI would inhale some of the gas?

Mr. O'CONNOR. Which would then pass——

Mr. REGULA. It accentuates the imagery?

Mr. O'CONNOR. That is correct.

Mr. REGULA. And makes the MRI much more effective?

Mr. O'CONNOR. Much more detailed.

Mr. YATES. You have to use a dye now through a shot?

Mr. O'CONNOR. No, sir, Congressman Yates. Right now with MRI what one is actually measuring is an electron spin of hydrogen. So there's no dye. It's a non-invasive technology. This would permit the enhancement of it because the electron flips are more accentuated.

Mr. YATES. That's kind of interesting. I originally had an MRI about a year ago, and they gave me a shot because they said they wanted to trace the flow of radioactive——

Mr. O'CONNOR. Was that an MRI, sir, or was that a positron emission tomograph, a PET scan? [Laughter.]

Mr. YATES. I think it must have been the latter. Obviously you know much more about it than I do.

Mr. HEYMAN. I chose pretty wisely, didn't I? There's a host of other research going on, obviously some basic and some that really turns into product. That's why I want us all to know there is a relationship between general research undertaken and often practical applications.

SMITHSONIAN/HARVARD RELATIONSHIP

Mr. REGULA. You mentioned Cambridge. Is this part of Harvard or is this a separate institution that you maintain up there?

Mr. O'CONNOR. We maintain our own institution up there, Mr. Chairman. But we also are very closely affiliated with Harvard's Department of Astronomy and the Harvard College Observatory.

Mr. REGULA. But yours is an independent organization with an association with Harvard?

Mr. O'CONNOR. That is correct.

Mr. HEYMAN. We jointly administer a Ph.D. program in astrophysics.

Mr. YATES. What does that mean? You jointly administer students who are seeking Ph.D.s in astrophysics?

Mr. HEYMAN. That's right. So there are instructors and scientists who belong to the Smithsonian and those that belong to Harvard who work together in this program.

Mr. YATES. Where is Irwin Shapiro in this?

Mr. HEYMAN. He is the boss of the whole activity, both for Harvard and for the Smithsonian.

Mr. SKAGGS. Does the Smithsonian get a piece of the tuition action from Harvard for this?

Mr. HEYMAN. Unfortunately not.

Mr. SKAGGS. Why not?

Mr. HEYMAN. Well, Harvard pays a lot of the expenses of the operation.

Mr. SKAGGS. So we get something?

Mr. HEYMAN. There was a long and tough negotiation at some time in the past with regard to the sharing of costs. I think both sides feel that it is pretty fair presently, although I always want—instead of being the Harvard Smithsonian Center, I'd like them to flip that, but it has been very difficult.

Mr. SKAGGS. But we do get a fair portion of costs?

Mr. HEYMAN. We do. We do, Congressman Skaggs.

Then of course we have a like set of relationships in Arizona, where we have telescopes. We work a lot with the University of Arizona in a very similar arrangement that enhances the product of both of those places, given the cooperation that exists between the two.

Mr. YATES. Are you involved in the third telescope on Mt. Graham controversy? The University of Arizona——

Mr. HEYMAN. No, no, no. We're not in that at all. Right, we're not in that one at all. I wanted to talk about red squirrels, but I decided not to.

RESEARCH AT THE SMITHSONIAN ENVIRONMENTAL RESEARCH CENTER

I don't know if you recall, and I'll just give you this last example of research, at the Smithsonian Environmental Research Center on the Chesapeake, there's some very interesting work going on. As an example: investigating the ballast of ships that come from, for instance, Europe or Asia and discharge their ballast into the Chesapeake. That ballast has all kinds of things, live things in it that are not natural to the Bay. They potentially can have some very dire effects with regard to fauna there.

Mr. REGULA. Now that you mention that, Lake Erie or the Great Lakes in general have had a real problem with zebra mussels.

Mr. HEYMAN. Very similar.

Mr. REGULA. These were brought in by the Russian ships that discharged their ballast in the Great Lakes and as a result we have an enormous problem that would affect obviously Lake Michigan and the whole series up there.

Mr. HEYMAN. Well another example of a project that's going on at SERC, which probably would interest the Chairman especially, is that they are doing a lot of experimentation in growing trees between fertilized fields and riparian streams. It is turning out that a good deal of the pesticides and the nitrates are being absorbed by the trees, and thus, never reach the riparian streams. So it's a very natural way of trying to take advantage of—I mean to cope with pollution, and probably a really quite inexpensive way if this works as well as it seems to be presently.

So there are a number of projects that are going on in various Smithsonian places that fit the descriptions that I have just stated.

REORGANIZATION

You know that with your approval, we had a fairly deep reorganization between the last time I testified here and presently. The result of that is Dennis O'Connor, who in a way has substituted for a number of assistant secretaries. We no longer have the assistant secretary roles. The whole office has been downsized considerably. The Under Secretary is working on similar things on the staff side.

So I think we're becoming a tauter institution administratively than we were previously.

Mr. YATES. What happened to the assistant secretary, for example, of the National Portrait Gallery, he was an assistant secretary, was he not?

Mr. HEYMAN. No, no. Just a director.

Mr. YATES. The director. Oh. Freidenheim was the assistant secretary.

Mr. HEYMAN. That's right.

Mr. YATES. For all of the museums.

Mr. HEYMAN. He's at the Wilson Center presently and will be there for another few months.

Mr. YATES. Was Hoffmann an Assistant Secretary?

Mr. HEYMAN. He was. Then he was the acting Provost. Now he is the Acting Director of the Air and Space Museum. But as soon as we make that appointment, he is going back to research, which he has been planning to do for some considerable period of time.

VOLUNTARY SEPARATION PROGRAM

Mr. REGULA. This brings up a subject, you have asked for $3 million for buyouts in the continuing resolution. Can we be assured when you do these buyouts and reduce numbers that they won't be replaced?

Mr. HEYMAN. Yes.

Mr. REGULA. In other words, those positions will be eliminated in effect?

Mr. HEYMAN. The positions that are freed by those, there might be some backfilling, but it will be out of other positions that we have.

Mr. REGULA. So there will be an overall reduction?

Mr. HEYMAN. There will be a reduction.

Mr. REGULA. Of full-time employees.

Mr. HEYMAN. It gets extraordinarily complicated if one takes a look at what new provisions might be authorized in the budget for some activities. But generally speaking, yes. As you look at our FTE authorized positions at the Smithsonian, they continually go down. The buyout authority that we keep our fingers crossed we'll get tomorrow is intended to be used to reduce positions and thus make ourselves more flexible with regard to both our needs and our funding.

Mr. YATES. What do you mean by get tomorrow?

Mr. REGULA. In the omnibus bill. By voting for that you will help to save money.

Mr. YATES. I do think it has one or two provisions in it that are acceptable.

Mr. HEYMAN. Lest I get into deep water, I won't comment.

Mr. YATES. Is that coming up tomorrow?

Mr. REGULA. Tentatively. But the continuing resolution expires I think tomorrow.

Mr. YATES. I suspect it may have a——

Mr. REGULA. Yes, the 24th. So we'll either have to do it under a CR or pass the ominibus bill.

Mr. YATES. I don't see how we're going to do it.

FY 1997 BUDGET REQUEST

Mr. HEYMAN. I need not tell you too much about the budget request itself. It's all laid out. But I'll just highlight a few things.

Mr. YATES. Well, is it adequate?

Mr. HEYMAN. Of course not. It never is, sir. But we'll do our best with it. Actually it's not a bad one for us if we could possibly receive what is being requested it'll help us enormously, because what it will do is cover the mandatories and the inflation increases that we have lived with in the last year or so. That will be very helpful because our S&E budget went down about four percent this past year because it didn't cover mandatories and the like.

This brings that back. It has some modest enhancements. It has $38 million in R&R, in repairs and restorations, and Rick Rice is going to be talking about that in a moment, and $4 million in zoo construction, $13 million in other construction, mostly planning money. Now I know they are not absolute puts and takes, but if you compare what the conference figure was for this year against what is being sought for next year, it's about 2.8 percent greater. So it's a fairly modest request in terms of increase. But on the other hand, there was quite a lot of construction in last year's budget. There's much less in this one. Consequently, it's a different fabric of requests that are being made.

The major thing I can say with respect to this subject is that continually having to cope with the prospect of four percent decreases because of mandatories and inflation, is grim. I mean it really is grim. I know that it's not entirely in your hands in terms of what allotment the Subcommittee gets, but I just want to remind everybody that it is very difficult to cope with.

Mr. REGULA. It appears to me highly unlikely that we will have any more for 1997 than we had in 1996 from the budget process. Given those circumstances, anything we would do to increase the Smithsonian has to be done at the expense of energy or Indians or forests or parks or some other of our responsibilities in this committee. So I have to say it's going to be tough to make these priority judgements. At some point, we might have to ask you to come back and have you prioritize your needs based on a downsized amount of money.

Mr. HEYMAN. No. I understand that. I would certainly, if it goes in that direction, I certainly would like the opportunity to set priorities—I just say though that in terms of the total amount we are asking for, it is very slightly more than last year.

REPAIR AND RESTORATION OF BUILDINGS PROGRAM

Now with your permission, I would ask Rick Rice to tell you about the repair and restoration program and the capital projects that are involved in this budget request.

Mr. RICE. Mr. Chairman, I'll give you a copy of the slide presentation. Mr. Chairman, I want to thank you for the opportunity to talk to you about the Smithsonian's repair and restoration program and our major construction projects. The first part of the presentation is about our repair and restoration program. A lot of things have changed along Independence Avenue since 1863 in which you see the Castle and the Capitol. The Smithsonian now has a very significant presence on the Mall.

You asked some questions earlier about the assets of the Smithsonian. We have over 300 buildings in five States, the District, and Panama. Almost 6 million square feet of space. We range from virtually new buildings to over 140 years old. We have several different types of buildings, museums, galleries, restoration and storage buildings, and centers for education and research.

Some of the challenges that we in the facilities business face are that we have over 6,000 employees and 5,000 volunteers; many of our structures are historic structures; we are open every day except one during the year, which makes maintenance scheduling imperative; and we have over 140 million artifacts that we need to protect from the elements.

COLLECTIONS MANAGEMENT

Mr. REGULA. What percent of the 140 million items in your collection are on display?

Mr. RICE. I haven't been asked that before.

Mr. REGULA. Will the full 140 million ever be on display?

Mr. O'CONNOR. An awful lot of that 140 million, Mr. Chairman, are in Natural History. They represent species type collections that are used for research and probably aren't on display, public display.

Mr. REGULA. I keep raising the question. Ultimately we can't pay the costs to maintain each storage facility and expand if we're going to ever downsize Government. I guess is there any way you have challenged the validity of keeping all 140 million items?

Mr. HEYMAN. Mr. Chairman, one of the things we are preparing right now, which is going to be done sometime this year and shared with you, is a collection plan that will address how to deal with the problem that you've noted.

It is true that of the 140 million objects and specimens about 120 million are in the Museum of Natural History. Many of those are minute. I mean some are smaller than insects. So in a way, 140 million artifacts doesn't give you too much of a feel of what their bulk is. But there are obviously items of bulk. There are over 3 million items in the Museum of American History, which I think is our biggest challenge with regard to determining priority of acquisition, priority in terms of retention, what kinds of things ought to be deaccessioned, and the quality of storage. That is where the focus of this paper I'm talking about is going to be.

Mr. REGULA. Well, as you know, when we were out there you talked to the folks at the McKinley Museum about possible loans.

Mr. HEYMAN. Absolutely.

Mr. REGULA. Objects you receive. Program developing, whereby local museums could get access to some of these things. Use them for the public benefit.

Mr. HEYMAN. Absolutely. That's really part of this whole idea of affiliation and partnership. I really want to make this a go, over the time I am secretary.

Now one of the problems is that most of those museums don't have a lot of money either. They would like some subsidy with regard to the location of the items. But those things are going to have to get decided somehow if we're going to be able to get a lot of our artifacts out to other museums. We do have places where there are quite a few. The Anchorage Museum, for instance, is one that has a lot of the Smithsonian's Arctic materials in it. In a way, that's sort of a model of the kinds of affiliations that one can enter into.

Mr. YATES. Mr. Chairman, how does this relate to SITES? SITES does distribute various artifacts to anybody, museums, libraries, other places that will rent them. Now when Mr. Regula talked about the McKinley Museum and you said that you would possibly make available certain artifacts to the McKinley Museum, is this done through SITES at a rental, or is this done gratuitously? How is it done?

Mr. HEYMAN. One is going to have to make a determination of how it's to be done. SITES really travels exhibitions. It puts together exhibitions and they travel.

Mr. YATES. For institutions like the McKinley Museum.

Mr. HEYMAN. For institutions like that, right. A second way of doing like things, although it wouldn't be the same, would be to take some artifacts that don't have great opportunity to be shown in the relevant museum here in Washington, and lend them on a long-term basis to some other institution. For instance, we've begun conversations with the museum community that is getting established in Long Beach, California. One of those museums is to be a maritime museum. We have case after case of ship models largely from the 19th century that we can't display because they are much too bulky. So they are in storage. At least in very preliminary conversations, there's a possibility that Long Beach would like, and at their expense, for us to ship those out for semi-permanent loan. We would make sure that the conditions under which they would be displayed and stored would be good ones. It's that kind of thing that I am trying to develop, Mr. Yates.

BUILDING INSPECTION PROGRAM

Mr. RICE. In order to assess the condition of the facilities, we have a systematic inspection program where we use in-house staff and contract professionals; for example, elevators and chilled water plants where we don't have the in-house expertise, we'll hire a consultant. We do it at regular intervals. We measure our buildings by current industry standards.

Some typical actions during our inspection process——

Mr. YATES. Are you talking about the actual physical building?

Mr. RICE. Yes, sir. I am talking about——

Mr. YATES. What happens with respect to the artifacts that are within those buildings? For example, the Corcoran Gallery of Art. Your program looks at the building.

Mr. RICE. Yes, sir.

Mr. YATES. Okay. I don't mean Corcoran, I mean Hirshhorn. Yours looks at the building itself. Do you have an inspection program? I don't know that this is your field, but——

Mr. RICE. Well, each museum director has specialists on their staff who keep track of it.

Mr. YATES. Do they go around and take a look at each of the paintings and drawings?

Mr. RICE. Yes, sir.

Mr. YATES. To see what the condition is?

Mr. RICE. Yes, sir.

Mr. YATES. Does someone testify as to that?

Mr. RICE. Yes, sir. I can get specifics on that.

Here, we're inspecting the American Art and Portrait Gallery, which is our oldest structure where we have some water damage, and the evaporator tower has some problems.

Roofs are of great concern to the Smithsonian, because they are paramount to maintaining the integrity of the building. Sometimes we find problems but we don't have the money to do anything other than apply a bandaid. This is the Natural History building, where we've taken plastic and buckets to take care of a problem.

We have the capability to inspect our many miles of pipelines. If we find a pipeline that is asbestos-covered, we have the technology, the equipment, and the training to get in and properly inspect it.

If you look at a building in terms of systems, it's a series. It's just like your home. You have a heating and air conditioning system. Industry standards have been set for these systems. For example, elevators, typically 35 years unless the codes change; roofs last 25 to 30 years. In many cases, the Smithsonian systems are well beyond this point. We have done this through careful maintenance. We're also doing it at great expense because the older a system is—it's like finding parts for an old car. They get very expensive and hard to find.

We have adopted at the Smithsonian a methodology for looking at our buildings and assessing their condition that was developed by the Building Research Board with the National Research Council. It looks at a system. Any physical asset, when you buy it is in excellent condition. Over time it will decay unless you renew it. When it gets down into this area, it gets very expensive to maintain.

REPAIR AND RESTORATION OF BUILDINGS ASSESSMENT

We have looked at each of the systems through our inspection program at the Smithsonian. For some of our major buildings, we have made an assessment, a composite of what condition we think the systems are in. We have four buildings that are in an area where we are most concerned, Natural History, American Art and Portrait Gallery or the Patent Office Building, Arts and Industries, and the Castle or Smithsonian Institution Building. They are moving down into the area where it's costing a lot of money to maintain them.

I want to show you some particular examples. We think our total problem is in the order of $250 million. If you look at it by type of problem, roof repairs in the $80 million range; fire protection, life safety, code compliance, $45 million; and the rest is in mechanical, electrical systems, and general repairs.

If you look at it by building, and once again this is just looking at our major buildings, the predominant problem is in Natural History. I'll talk about that in a minute. It is our largest building with over a million square feet. You don't see American History up there because we have just finished a program over the last eight to ten years to totally renew the systems in the American History Building. We did a similar program with the Freer.

Some of our principal concerns are that the collections are at risk and the deterioration is accelerating in historic buildings. We have the four buildings I mentioned. We are worried about denying the public access to parts of the collection when systems fail.

Of the four buildings, we are most concerned about Natural History, which was built in 1910 and the wings were added in the 1960s. That was the last time any systems were upgraded. The deficiencies are in the $100 million range. There is one more historic slide. This is the technology that built the Natural History building. Notice the horse-drawn dump truck. Many of the systems, the electrical systems especially, have parts that go back to the beginning, to the construction of the building. We need to upgrade these systems.

The other three buildings we are most concerned about are the Patent Office building, which was built in sections in the mid-1800s, about $40 million. We are most concerned here about the roof and some of the mechanical systems inside.

The Castle was last renovated in the early 1960s. Built in the mid-1800s, it has mechanical, electrical, and life safety problems. And the Arts and Industries building, built in 1879, primarily has mechanical problems.

We have done a projection for the requested level of $38 million in R&R. If you remember back to the earlier slide, we made very little progress because our experience is that decay and growth in the backlog is in the $25 to $35 million range.

The Smithsonian Commission on the Future recommended a funding level of $50 million. If we were to get that funding level for five years, we feel we could get all of the buildings into the acceptable range.

In conclusion, I want you to understand that we do measure our requirements in terms of industry standards and they reflect valid needs. Increased funding is critical to properly protect the collections and the people. I'd like to request your continued support.

NATIONAL AIR AND SPACE MUSEUM DULLES CENTER

I also mentioned I was going to discuss two of our major construction projects. The first is the extension to the National Air and Space Museum, to be located at Dulles Airport. Of course, you know the facility on the Mall was completed in 1976 and has on display about 20 percent of our aircraft. Except for a small number of objects on loan, the rest of the collection, which is aircraft, spacecraft, and many small parts and other components associated with flight, is stored primarily at the Garber facility. These buildings, many of them dating from the 1950s, are old, metal pre-engineered buildings. This is how the collection is stored. It's difficult for researchers to get to it. It is difficult to protect it from the weather when we have failing roofs. It's difficult, if not impossible, to allow public access to those.

Mr. YATES. You do have some public access?

Mr. RICE. Yes, sir. Only limited public access.

Mr. YATES. Limited in time or——

Mr. RICE. Even if we got the public in there, you can't move around in a lot of the buildings.

This is the way some of the more delicate engine parts and power plants are stored. This is not a very satisfactory solution. Congress recognized this and authorized us to look into an extension at Dulles. These are aircraft stored at Dulles. I'm still showing you the collection that is not on display. This is a Super Constellation. This is the Blackbird, which is now in that temporary hangar. This is the space shuttle *Enterprise,* arriving in 1985 to be part of the Dulles facility. It is still out there, but it's not accessible to the public. It's difficult to maintain in the current facility.

We have chosen a 185-acre site in the Dulles complex outlined in red at the bottom of the chart there. These are our initial concepts for this facility. There is a new interchange off Route 28 called the Barnsfield Interchange that the State has agreed to put in. Along with it, the State is going to put in the access road and the taxi way to the tune of approximately $40 million. Our new facility is shown here in yellow. The property goes like this. This is a light industrial and a police vehicle training facility. Also, Dulles has retained property to put in a possible additional runway. Our facility is sited so as not to conflict with that, should they ever build it.

This is a concept of the facility. The parking lots are over in this area. The public enters here. All the public spaces, including the theater, are on this side. This is the main exhibition hangar, which has aircraft on the floor and hanging from the ceiling. The public can walk on the floor or on a series of walkways. The space shuttle and space hangar are back here. The conservation hangar facility is out here. The public can walk through that facility in a protected walkway.

This is what the footprint looks like. This is the Mall museum which is about 600,000 square feet. This is the Air and Space Museum extension. The first increment, which does not include this piece, is under 500,000 square feet. This piece is a possible additional increment for storage and study space.

This is another rendering from the side that shows you the public access. Over in this area, which I didn't mention earlier, is where the cafeteria, the shops, the educational spaces are. The public can walk on the floor or on the walkways. They go back and see the space shuttle and other things. This is the current concept for the Dulles facility. We have requested design money for this in the budget.

NATIONAL MUSEUM OF THE AMERICAN INDIAN, MALL MUSEUM

The other major construction project we are working on is the Mall museum for the National Museum of the American Indian. Just a little background on the American Indian Museum. Of over a million items in the collection, many of them are fragile, painted feathers, leathers. Currently most of the collection is stored at our Bronx facility in conditions such as this, where it's very difficult to study the collection. The public does not have access. We are doing our best to maintain it, but it is a challenge.

We did open the Heye Center facility in the Alexander Hamilton Custom House building in New York in 1994, which offers limited space for display of the collection and for native ceremonies. Very little of the collection is on display, but it is available to the public in New York. The remainder of the collection will be moved down to our Cultural Resources Center to be constructed in Suitland, Maryland. We are waiting for the last little bit of money so that we can complete evaluating our proposals and get the contract awarded.

The collection, however, will be displayed on the Mall. This is an artist's rendering of a new facility on the Mall right here. I'll show you that in a little more detail later. This is the National Gallery of Art East Wing and the Air and Space Museum. The facility as currently conceived would take about 24 percent of the plot of land that is identified in the legislation, which you just saw in the previous slide.

Some size comparisons. The building that we have proposed to build is about 250,000 square feet. That's a small building compared to the East Wing of the National Gallery. It's about three-quarters of that. It's about one-fifth of the Natural History Museum and about a third of the American History Museum. So you get an idea on size comparison. This is a rendering of it. Circles and curved surfaces are important to native peoples who were consulted heavily on this. We also have ledges similar to what you might find in the southwest.

Looking at it from another view, the public will come probably from the direction of Natural History and Air and Space, up this path and enter the building through a Potomac, as it's being referred to at this point. The first floor is all public space. It has a theater. It has shops, a cafeteria, and some minor exhibitions. Primary exhibition space is in the upper floors. Off in to this direction is the Botanic Garden. All of this land around the building will be landscaped in native plants in harmony with the Botanic Garden. We have the same landscape architect as the Botanic Garden.

That is the end of my presentation, sir. I'd be happy to entertain any questions.

Mr. REGULA. Do you want to finish or does this complete your statement?

Mr. HEYMAN. I think that completes our presentation, Mr. Chairman. We stand ready to answer, seek to answer any questions you might have.

SMITHSONIAN PRIORITIES

Mr. REGULA. I am concerned as I look at this, you are talking about $250 million now that's needed for repair and renovation if you had it. Correct?

Mr. RICE. That's correct.

Mr. REGULA. And the budget calls for what, $38 million. At the same time, operations and maintenance, salaries up about $20 million. I am not sure I agree with those priorities. You are adding costs to your personnel at the same time we're neglecting something that will only get much worse if we continue to let it go.

Mr. HEYMAN. Well, I really understand the dilemma. We have discussed it before. I really don't have a more satisfactory answer than I stated last year. It seemed to me that we are obliged to follow through on the commitments that everybody had made, both the Institution and the Congress, with regard to the Mall museum for the National Museum of the American Indian. We have so far raised $31 million of the $36 million that was to be the share or at least within the range of the share that was supposed to come from other than Federal sources.

We have also done our best, as Dennis can describe to you if you wish, to minimize what the additional operational expenses would be for that.

Mr. REGULA. Forty million, as I read your statement, that you anticipate the Indian Museum would add $40 million to your operating cost.

Mr. HEYMAN. No. Do you want to speak about that, Dennis?

Mr. O'CONNOR. Mr. Chairman, I think that what—I think that it is very unlikely that we can add the Mall museum or the Dulles Center without some increase in cost. I think that we will approach those increases in costs by attempting to reduce our expenses in other areas. I think we will approach it by a very aggressive private philanthropy and fundraising programs. I think that we will be left, if we are successful in those two arenas, still with some marginal increase in cost, probably on the order of $10 million or so for both museums.

ADMISSION FEES

Mr. REGULA. Have you contemplated fees for access to museums? I know this is an old topic, but the regents have looked at it. Is there any conclusion?

Mr. O'CONNOR. I'll let the Secretary deal with that.

Mr. HEYMAN. We're going to have a rather detailed report that was asked for by the Senate Appropriations Committee on fees. I really don't want to say what the outcome will be because the Regents are going to make that determination at the meeting on May 5. The probabilities are that they will not rule out the possibility at some time for fees, but would not wish to adopt them presently, but I'm just not sure. This really is something that the Regents are deeply involved with, and the new *ad hoc* committee on policy and programs and priorities that the Regents created has been working on this question itself. So I think it would be premature for me to state it. But, obviously, there are—there's some consideration being given anew to the potentiality of fees sometime.

Mr. REGULA. Aren't most of the major museums around the world charging fees, in many cases rather substantial fees?

Mr. HEYMAN. Many do. I just came back from London, where I was last week. There are some of the museums that are not. The British Museum, for instance, still does not charge fees, but Natural History does; the Science Museum does, and a number of the others do. So there's been a considerable——

Mr. YATES. Does the Tate Museum?

Mr. HEYMAN. The Tate? You know, I'm just trying to think, having been in it. I think so, Congressman Yates. I'm not absolutely sure. I got in early with a group of people, so I don't remember for sure.

Mr. YATES. They probably paid your entry.

Mr. HEYMAN. But I think they do.

NATIONAL MUSEUM OF THE AMERICAN INDIAN OPERATING COSTS

Mr. REGULA. Well, I notice in the response to last year's question, overall total cost, you said the National Museum of American Indians, $8 million for the Custom House in New York, which is now open——

Mr. HEYMAN. Yes.

Mr. REGULA [continuing]. $55 million for Suitland, which I assume would be a storage facility.

Mr. HEYMAN. You mean for capital costs?

Mr. REGULA. No, this is operations.

Mr. HEYMAN. No, sir.

Mr. REGULA. Oh, this is capital, but the operations——

Mr. HEYMAN. Yes.

Mr. REGULA. Yes, for the capital, and the——

Mr. HEYMAN. Yes. But it's even less than $55 million.

Mr. REGULA [continuing]. And $80 million for the Federal funding of the museum, but I think you estimated total operating cost at $40 million.

Mr. HEYMAN. I don't know where that is. Do you know where that is [speaking to staff]?

Mr. REGULA. For all the facilities. I'm talking about New York, Suitland, and the Museum on the Mall.

Mr. HEYMAN. Yes, it could be. I mean, that would be similar to—when you put all of those together, that would be similar to Natural History.

Mr. REGULA. Which means if we go with this program, you're going have to try to absorb $40 million, and the rest of your budget, as you say, is a flat number.

Mr. HEYMAN. Well, excuse me just for a second. It just was brought to my attention at least—is this in our budget presentation? Well, then, we have to make this available to you.

We have been working these figures, and we continue to work them, but we have worked them so that in the year 2002, when the Mall Museum would open, the total operating expenses of all of the facilities——

Mr. REGULA. You're talking about New York, Suitland——

Mr. HEYMAN. That's right.

Mr. REGULA [continuing]. The storage facility, and the Museum?

Mr. HEYMAN. Correct. It's $26,881,000 for all three NMAI facilities. So there's been a considerable reduction in whatever the older figures were. We have been trying to listen.

Mr. REGULA. Well, you know, this is one of my concerns——

Mr. HEYMAN. Sure.

Mr. REGULA. Things we do now have great downstream costs, and if in fact we are going to downsize government, we've got to start planning now to hold down expenditures prospectively, and I have real concerns that that won't necessarily happen. I don't know how our successors on this committee are going to be able to meet your needs, and your successors are going to have to try to do it, too.

Mr. HEYMAN. I understand that, and I just come back to that this is catching us in midstream when——

Mr. REGULA. I know.

Mr. HEYMAN [continuing]. When we really made a lot of promises and we collected a lot of money on the basis of those promises——

Mr. REGULA. I understand.

Mr. HEYMAN [continuing]. Which really makes it extraordinarily difficult to withdraw.

Mr. REGULA. Oh, I understand that.

NATIONAL AIR AND SPACE MUSEUM DULLES CENTER OPERATING COSTS

I think in the case of the Dulles facility, we still are at a point where we have to decide whether we want to go that route. We're not committed to any long-term thing there.

Mr. HEYMAN. That's correct.

Mr. REGULA. Yes, Virginia, of course, will build you infrastructure, but the operating is the big item, and maybe that would be a pay-as-you-go with fees.

Mr. HEYMAN. Okay. Well, two things about it: first of all, where we are at the moment with respect to added operating costs, the max is about $5 million, right? So what we're talking about is $5 million in the combination of the Garber facility and the Dulles Center.

Mr. REGULA. You're talking about operating?

Mr. HEYMAN. That's right, operating expenses. Now if we're really pushed in terms of availability as time goes on, I am sure that we would seriously contemplate fees for that facility, which might be okay in relationship to a facility away from the Mall and in another setting. I don't think we'd like to do that, but I keep thinking about fees in accord with my recollections of tuition at the University of California at Berkeley; it was sacrosanct not to have tuition, but when it became apparent that the State of California simply couldn't pay, then one viewed that possibility differently.

My guess—that's sort of my intuitive sense about the fee question, and it might be the simplest, if need be, if it came to that, to contemplate fees in a place like the Dulles Center.

Mr. REGULA. Well, I think we, collectively—you as the managers and we as the subcommittee—have to think about where we want to be five or ten years from now in terms of cost and on the assumption that we're probably going to be on short rations as far as government is concerned for a long time to come.

Well, I have a number of other questions, but I've used my time. Mr. Yates?

GOVERNMENT DOWNSIZING

Mr. YATES. I hate to contemplate the Smithsonian that you're building, Ralph. It's been such a glorious exhibition over the years. We really haven't worried too much about the money because we permitted Smithsonian to expand over the years.

Mr. REGULA. I understand, but that's part of our problem.

Mr. YATES. Well, when you downsize government, the question is whether you downsize places like the Smithsonian or do you downsize the parks? Do you close the parks? Do you close the Smithsonian when you downsize? Do you close part of the Smithsonian? This is one of the great institutions in the world, and we ought to be building it up instead of tearing it down. And it just doesn't make sense to me.

I have a feeling that——

Mr. REGULA. If you'd yield—I don't disagree with you, but the reality is that we only have so many dollars, as you know that.

Mr. YATES. I wish we didn't have to face the reality. Maybe—who knows what will happen?

SUFFICIENT REPAIR AND RESTORATION FUNDING

At any rate, is $38 million enough for you for taking care of the physical properties of the Smithsonian?

Mr. RICE. I think it's a reasonable amount for this year. I agree with the Commission on the Future that $50 million would be better.

Mr. YATES. Well, $50 million would be better, but the question is, What do you need? You showed us pictures of the roof just leaking, a torrential amount of water coming into your museum. You're trying to collect it in plastic and buckets and a few other things. What building was that, incidentally?

Mr. RICE. That's Natural History.

Mr. YATES. I thought you were redoing Natural History?

Mr. HEYMAN. Well, we're doing the East Wing and the West Wing. The East Wing on Federal appropriations——

Mr. YATES. Well, what happens to the old wing? Is the old wing just allowed to die?

Mr. HEYMAN. No, the old wing has to be part of this program, clearly.

Mr. YATES. Well, of course it does.

Mr. RICE. Natural History is very high on our priority list, and——

Mr. YATES. I remember in the old days, when we reviewed your construction program, you worried more than anything else about the leaks in roofs. Don't you still have those?

Mr. RICE. Yes, sir.

Mr. YATES. Yes, but—well, how far will $38 million take you?

Mr. RICE. Thirty-eight million will take us a lot farther than we've been getting in prior years, and I really appreciate the support. Fifty would be a better number because that's what the Commission on the Future—with $38 million we can stem the tide and start making some progress.

Mr. YATES. Well, what is the difference between $38 and $50 million in terms of what you could do?

Mr. RICE. Our backlog grows on the order of $25 to $35 million a year. So virtually every dollar you get over, say, $35 million goes totally into system renewal. So with every new dollar over that range, I don't have to spend any of it for bandaids and other solutions, if I'm making that clear.

Mr. YATES. No, you're not making it clear. I mean, here——

Mr. RICE. If we were to get the Commission level, Commission-recommended level——

Mr. YATES. Yes, 38, "little progress is made because of the size of the backlog and the rate of deterioration of aging systems."

Mr. RICE. Yes, sir.

Mr. YATES. Well, that isn't a very happy future, is it? You're going to have a rate of deterioration that will be devestating—you won't be able to hold it with $38 million, will you?

Mr. RICE. Well, we think we can hold it, sir, and maybe make slight progress. That's what's reflected in there. At the Commission recommended level of fifty, we can make significant progress.

Mr. YATES. Like what? I'm trying to find out—and perhaps you'd rather do it for the record——

Mr. RICE. Well, our primary—yes, sir, if I could do it for the record, but our emphasis is going to be on Natural History and we want to go through the building system by system and upgrade the building.

Mr. YATES. Okay.

[The information follows:]

REPAIR AND RESTORATION OF BUILDINGS

The following charts illustrate the significant progress that could be made in ameliorating the condition of Smithsonian facilities if $50 million were made available annually as recommended by the Commission on the Future of the Smithsonian Institution. **CHART 1** shows that 2 museum buildings, the National Museum of Natural History (NMNH) and the American Art and Portrait Gallery building (AAPG), have already fallen below the minimum acceptable performance level. Two more buildings, Arts and Industries and the Smithsonian Institution ''Castle'' are rapidly nearing that state. **CHART 2** projects that all four buildings would be restored to the ''Good'' range at the end of five years at this funding level.

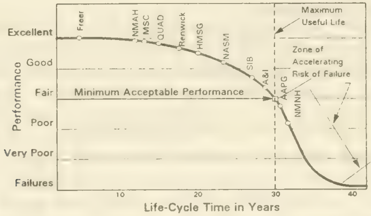

CHART 1: Smithsonian Facilities Conditions in 1996

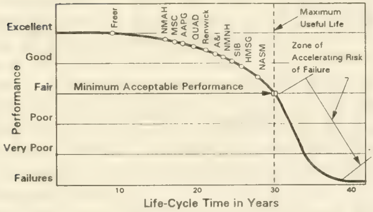

CHART 2: Projected Smithsonian Facilities Conditions in FY 2001 at $50 million annually as recommended by the Commission on the Future of the Smithsonian Institution

PRIORITIES FOR INCREASED R&R FUNDING

Mr. YATES. The $12 million, then, will almost all go to Natural History?

Mr. RICE. If we were to get the incremental amount, yes, sir.

Mr. YATES. That's the building that's really in trouble?

Mr. RICE. We have four buildings in trouble.

Mr. YATES. Yes.

Mr. RICE. But the two——

Mr. YATES. Which four?

Mr. RICE. The Castle, Arts and Industries, Natural History, and the American Art and Portrait Gallery or the Patent Office Building. Of those four, Natural History and the Patent Office Building are our greatest concern.

Mr. YATES. Why?

Mr. RICE. This is the condition. Of course, in the Patent—they both have water——

Mr. YATES. The Patent Building——

Mr. RICE. I'm sorry.

Mr. YATES [continuing]. Is the one that has the Portrait Gallery?

Mr. RICE. Yes, sir.

Mr. HEYMAN. And American art.

Mr. YATES. Well, that's a magnificent building. You can't allow that to deteriorate.

Mr. RICE. No, sir, that's why we've given it a high priority.

Mr. YATES. Well, when you give it a high priority, is $38 million going to take care of it? Your highest priority is Natural History, you said.

Mr. RICE. Yes, sir.

Mr. YATES. Well, how much—how far down the line is the Patent Office Building?

Mr. RICE. It's next.

Mr. YATES. This is the building where Abraham Lincoln danced at his second inaugural.

Mr. RICE. It is; that's right.

Mr. YATES. And, to me, that's the most important building you've got because of its historical connotation. How much do you need to put that in shape?

Mr. RICE. Well, we think the total problem is in the order of $40 million. We can't spend it all at once because we can't close the facility down.

Mr. YATES. Forty million for this one building?

Mr. RICE. Yes, sir.

Mr. YATES. And how much have you allocated under the $38 million to this building?

Mr. RICE. In 1996, we plan to spend, if we get the 1996 money——

Mr. REGULA. So, see, you need to vote for it. [Laughter.]

Mr. RICE. To keep in perspective, sir, I have less than $24 million right now because I don't——

Mr. YATES. For that building or——

Mr. RICE. For the whole program. So I'm very thankful for the support we're getting. [Laughter.]

We plan to spend $4 million on the roof.

Mr. YATES. You'd be more thankful for more support, wouldn't you? [Laughter.]

Mr. RICE. We're starting with the roof, which has serious problems.

Mr. YATES. Which building are we on?

Mr. RICE. We're in the Patent Office Building——

Mr. YATES. Okay. All right.

Mr. RICE [continuing]. Also known as the American Art and Portrait Gallery.

Mr. YATES. Yes.

Mr. RICE. That building we plan to spend $4 million on the roof.

Mr. YATES. You need $40 million for that?

Mr. RICE. No, four; the total requirement is forty.

Mr. YATES. Forty, yes. All right. And you plan to spend four?

Mr. RICE. In 1996.

Mr. YATES. Will that take care of the whole roof?

Mr. RICE. Yes, sir.

Mr. YATES. Okay.

Mr. RICE. And then we intend in 1997, with part of the $38 million, to start working on some of the mechanical system deficiencies. I showed you the cooling tower, which is decayed and really needs to be replaced.

Mr. YATES. Well, now what happens to the artifacts then? What happens to all these magnificent paintings in the National Portrait Gallery and in the American Art Museum? If your cooling system is on the blink, aren't they likely to deteriorate?

Mr. RICE. Yes, sir, we have to maintain proper temperature and humidity standards.

Mr. YATES. Are you doing it now?

Mr. RICE. Yes, sir, at great expense. I mentioned earlier that the systems are so old——

Mr. HEYMAN. Yes, let me just give an example. In my office in the Castle, which needs new——

Mr. YATES. It's a beautiful office. [Laughter.]

Mr. HEYMAN. Yes, but the air conditioner isn't a beautiful air conditioner.

Mr. YATES. I see.

Mr. HEYMAN. So——

Mr. YATES. Well, we'll get you some fans. [Laughter.]

Mr. HEYMAN. This is just an example. So what happens? Five or six times during the summer season, people have to come up and take apart this old air conditioner and then try to fabricate parts and put it back together again. If we had a new air conditioner, we wouldn't have to have those visits. So he's having to spend an awful lot of money maintaining systems that are really too old and too decrepit. And so his own view is, and obviously ours is, that if we can start to replace equipment of this sort on a regular basis, as you would anywhere. It will reduce—it will reduce our entire——

OPTIMAL R&R FUNDING LEVEL

Mr. YATES. How much money do you need for that?

Mr. HEYMAN. Well, $50 million a year, okay?

Mr. YATES. For how many years?

Mr. HEYMAN. Oh, well, forever in a way.

Mr. YATES. Oh.

Mr. HEYMAN. Fifty million dollars a year will bring all of these buildings here that are below the acceptable level up above the acceptable level, and it will start to push all the buildings closer and closer to this end, where you would say the building's in excellent or good shape.

Mr. YATES. So you need another $12 million over your $38 million?

Mr. REGULA. If you'll yield, Mr. Yates——

Mr. YATES. Sure.

Mr. REGULA. This report of the Commission on the future of the Smithsonian, which was done for the board, is very well done. I think it's a good document. It says a total of $50 million each year for the next decade——

Mr. YATES. Why don't we give it to them?

Mr. REGULA. Well, I'd like to, but then the Secretary's going to have to tell us where he's going to get that extra $12 million out of his budget, because we aren't going to have more money; he'll have to squeeze his budget $12 million somewhere else.

Mr. YATES. What happens to your budget if the $12 million goes to construction?

Mr. HEYMAN. It obviously depends upon where you would take it out. If you took it out of the construction budget, it would mean that we wouldn't progress on the Indian Museum, because that's the major construction budget item that we have.

So—I'm saying this off the top of my head.

Mr. YATES. How much are you asking for the Indian Museum this year?

Mr. HEYMAN. Four million dollars this year for the finishing of the——

Mr. YATES. How do you get $12 million out of this year's——

Mr. HEYMAN. Oh, you mean this year's budget?

Mr. YATES. Yes. We're talking about putting another $12 million into his budget. Where are we going to get $12 million?

Mr. HEYMAN. I'll have to sit down and try to figure it out. I guess my priority at the moment is pretty much reflected by this budget.

FUNDRAISING

Mr. YATES. How much have you been raising from private sources? I know that you've been trying to do this for years. Has it been——

Mr. HEYMAN. We raised $49 million last year, but——

Mr. YATES. From private sources?

Mr. HEYMAN. Yes. Yes.

Mr. YATES. That's a lot, isn't it?

Mr. HEYMAN. Yes, it would be if it was unrestricted. The problem is that most of it comes in in restricted form, and it's very hard to raise money for renovation and repair.

Mr. YATES. I know.

Mr. HEYMAN. So it's coming in, and it's coming in at a heightened level. The major source that can be utilized for these purposes—but we've got to get a lot more efficient than we are now—are the business enterprises of the Institution.

Mr. YATES. Well, what happens if you don't have the money? You don't have exhibitions for your museum?

Mr. HEYMAN. Well, I think——

Mr. YATES. Are they feeling that impact now? You'll have to put up money for exhibitions, won't you, if you——

Mr. HEYMAN. Oh, the rate of change of exhibitions now at the Smithsonian is less than it used to be because we've got to find 4 percent of our budget in salaries and expenses someplace. Our reaction is to start to say, "Should we continue to do the kinds of long-term, very expensive exhibitions or should we start to do—should we do ones that are less expensive that might, thus, be able to change more often?" And every museum that we have is going through these sets of decisions, but right now the fact is we're putting on fewer new exhibitions than we used to.

Mr. YATES. What about your scientific research; has that been cut back?

Mr. HEYMAN. What would you say, Dennis, in terms of scientific research?

Mr. O'CONNOR. I think it's stabilized. It's not expanding into the areas into which we would really hope to expand over the near future.

Mr. YATES. Am I taking too much time?

Mr. REGULA. Go ahead and finish.

Mr. YATES. I'm sorry.

Mr. O'CONNOR. It's stabilized, Congressman Yates. I don't think it is——

Mr. YATES. At a low level or a higher level?

Mr. O'CONNOR. Well, I think my comparison is only over the past couple of years, being relatively new to the Smithsonian. I think it's stabilized over the past couple of years.

Mr. YATES. You don't look for new subjects, then, do you?

Mr. O'CONNOR. Well, we do, sir, but we have to look for new money to support those new subjects.

Mr. YATES. Yes. Okay, thanks, Mr. Chairman.

SETTING PRIORITIES

Mr. REGULA. Mr. Nethercutt?

Mr. NETHERCUTT. Thank you, Mr. Chairman.

This is a very interesting discussion. I think Mr. Yates and you, Mr. Chairman, illustrate life in today's world. The Smithsonian's no different. You have a champagne appetite with beer income, and we struggle with that.

I wonder if in your quest to maintain what you have, you shouldn't make sure that your priorities are set in that direction and not in the direction of adding $110 million for the Indian Museum. I mean, maybe we just have to face the harsh reality that we have to wait a little bit longer on that one. I know you've raised some money privately, and my sense is that, even under the authorization that the Congress granted last year, you're not restricted to just a third.

Mr. O'CONNOR. Oh, that's perfectly true.

Mr. NETHERCUTT. You could do it all privately if you had the resources. I'm troubled by the fact that we're not maintaining these buildings the way they ought to be maintained, and it seems to me we ought to really take care of what we have first before we start expanding or trying to expand, even though we want to expand.

Mr. HEYMAN. Sure, I understand that. I mean, I don't know what the proportions ought to be, but in the original conception the whole—the collections and conservation facility in Suitland—was to be paid by Federal appropriations, and the way it's now worked out, assuming that we get the 1996 budget in an omnibus bill, and we get back to conference level, we're having to pick up $9 million that we hadn't planned on before. And I understand that, and I think those are the kind of compromises that one really has to talk through. And I wouldn't be surprised, if this goes forward on the Mall, that we will have to talk through with the committee staff and with the chairman other ways of adding to what our original expectation was. So I think all of those are really open, at least from my perspective, for conversation.

Mr. NETHERCUTT. I heard your testimony with regard to the amount of private donations and funding sources you have. The information I have before me is that you were expecting that you would receive about $119, almost $120 million in nonappropriated funds in 1996. Is that number accurate?

Mr. HEYMAN. Oh, well, I see. Putting everything together——

Mr. NETHERCUTT. Yes, that's what I'm looking——

Mr. HEYMAN [continuing]. First, obviously, we have to net it because, in terms of the museum shops and the catalog sales, and all the rest, it costs us quite a lot of money to make the money. But if you put all that together, plus the advantageous things that are happening this year, like the $40 million that we're getting from the corporate partners of the American—of the show that's traveling around the United States, that figure sounds about right. But some of it is one-time money in terms of raising money or producing money from enterprises. And so I can't rely on that.

The hardest figures are really in terms of unrestricted monies, which are the kind of funds that could be devoted to the purposes that we're talking about. The net from the business enterprises is presently around $28 million, and we're trying our very best to edge that up, but it's hard to do anything fast. In terms of donations, of the $49 million that we raised last year, I know that no more than $8 or $9 million of that's unrestricted money. The balance is all restricted money.

Mr. NETHERCUTT. Is there utility in having a call to the Nation, whether it's corporate sponsors or individuals like you or me, that says we need $50 million a year to make sure that the national treasures are maintained and the buildings are maintained? Would that be counterproductive or productive?

Mr. HEYMAN. Oh, I think it's very productive so long as there's a general agreement between the committee and the Institution that we net that, because if all we're doing is put-and-take money, then it's very hard to raise it. But if you can say to the donors every penny you give is an add-on to what is the base, then you can do pretty well.

And it is certainly my intention—and, thus, the intention of the Smithsonian administration—to continue to go higher and higher in terms of what we receive. As a matter of fact, we've just begun the arduous process for a capital campaign for the Smithsonian, something we've never done before. And, of course, all of those things take time.

But it is clear—and the chairman and I have had these conversations, too—it is clear that we are going to have to be more dependent on the private sector in giving and in our business enterprises, and we're taking that very seriously because I know perfectly well, from the point of view of what's happening fiscally, at least presently, that we're going to have to look to the outside for enhancements.

CONSERVATION RESEARCH CENTER

Mr. NETHERCUTT. Two quick questions, if I may, Mr. Chairman: with regard to your funding and your priorities and your squeezing the budget to get all that you can get out of it. You have the Conservation Research Center at Front Royal, Virginia. It employes about 55 people, and I understand this consumes about a third of the National Zoo's budget. Do you feel that that's still justified, the expenditure for that Conservation Research Center? Can we save any money there? Might you consider—and I know I'm asking multiple questions——

Mr. HEYMAN. Yes, I'm sorry, I'm just talking——

Mr. NETHERCUTT. That's all right. Would you consider possible elimination or consolidation of the CRC as a means of getting the extra $12 million, or whatever it might be, to help these buildings——

Mr. O'CONNOR. We might be able to save at the margin, Congressman, and——

Mr. HEYMAN. Excuse me just for a second. The operating budget from Federal appropriations, I am told by the Director of that, is $3.5 million a year.

Mr. NETHERCUTT. Okay.

Mr. HEYMAN. It's not that figure. That place gets an awful lot of grants and private support from a whole host of sources, and they've been very enterprising in being——

Mr. REGULA. And you supply other zoos?

Mr. HEYMAN. Pardon?

Mr. REGULA. You supply other zoos with animals——

Mr. HEYMAN. Yes.

Mr. REGULA [continuing]. And you get compensated for that, I assume?

Mr. HEYMAN. Yes. It's really a shoestring operation down there.

Mr. NETHERCUTT. Okay, I wasn't sure what the net might be insofar as we are trying to explore ways to get you more money.

Mr. HEYMAN. Right.

SAFETY AT THE NATIONAL ZOOLOGICAL PARK

Mr. NETHERCUTT. One final question: in Philadelphia there was a tragic fire that killed some animals. Are you satisfied that there are adequate fire suppression, warning or protection systems in place at the National Zoo or other zoos that will avoid a repeat of that situation?

Mr. HEYMAN. I really would like Mike Robinson——

Mr. NETHERCUTT. Sure.

Mr. HEYMAN [continuing]. He is the Director of the National Zoological Park, to deal with that.

Mr. ROBINSON. Yes, you can never—I'm 99 percent satisfied that that kind of thing can't happen at the Zoo, but our maintenance and restoration program is in the same state as the Smithsonian's is, except for the line item in the budget.

One of the items is a complete inspection and revision of our fire prevention facilities. The new buildings are all very up-to-date, and we have the great advantage that at night there is a Zoo police staff patrolling the whole establishment. The one time when a heater short-circuited in the Amazonia exhibit it was detected more or less instantly and caused no damage. But, you know, there is this situation where buildings that are old have the same problems that you've heard about from the Smithsonian's management.

Mr. NETHERCUTT. That's all I have at this moment, Mr. Chairman. I sympathize with you, and we struggle with all this. I think all of us are committed to the Smithsonian and to having a strong Institution maintained properly to be enjoyable for everybody in the Nation. It's just figuring out how to get from here to there, and it's a pleasure to see you're at least exploring the possibility of enhanced private contributions. And to the extent that we can help on that,——

Mr. YATES. Why do you think he looks so haggard? [Laughter.]

Mr. NETHERCUTT. Pardon me? Why does he look so haggard? He looks stress-free compared to you and me and the chairman. [Laughter.]

Anyway, thanks for your efforts. Thanks, Mr. Chairman.

Mr. REGULA. The committee members will have questions to submit for the record.

Mr. HEYMAN. Yes, sir.

SMITHSONIAN'S NEW GENERAL COUNSEL

Mr. YATES. I want to meet Mr. Huerta.

Mr. HEYMAN. Oh, the new General Counsel of the Smithsonian Institution, John Huerta.

Mr. YATES. Hi, Mr. Huerta. I was just looking through your biography. I thought it was very, very good.

Mr. HUERTA. It's a pleasure.

Mr. HEYMAN. You saw where he went to law school, didn't you?

Mr. YATES. I noticed that, yes. Even with that——

[Laughter.]

Mr. HEYMAN. Boy, I asked for that one, didn't I?

Mr. YATES. I wanted to meet the replacement for Mr. Powers, whom I named "Judge" 20 years ago. I suppose we'll be naming Mr. Huerta the same, "Judge."

Thank you, Mr. Chairman.

REVENUE GENERATING ACTIVITIES

Mr. REGULA. Can you generate any additional income from your concessions operations?

Mr. HEYMAN. Well, I hope that we're going to be able to come into you all with a report——

Mr. YATES. I don't remember any of the museums where they're selling popcorn. [Laughter.]

Mr. HEYMAN. We're planning on doing some very considerable reorganization of how we carry on those businesses. And Connie Newman has just gotten a long report from Peat Marwick, and she's starting the consultation—we're all starting the consultation—with each of the museums. The directors would like a larger piece of the action, as you might imagine, and we're prepared to do that. We think that might enhance total receipts, especially in product development. So we're taking that awfully seriously.

CHOICES FOR THE FUTURE

Mr. REGULA. I was interested in this report of the Commission on the Future of the Smithsonian Institution.

Mr. HEYMAN. Yes.

Mr. REGULA. Again, I reiterate it's excellent and I think very pragmatic, and it says in there that the Smithsonian will not be able to do everything we all want to do and that it must "choose between established, even cherished activities and new programs." Now that's a pretty substantial statement, and I guess my question would be: are you looking and contemplating how you're going to meet those challenges?

Mr. HEYMAN. Well, yes, of course, we are, but what I've been relying on so far is that most of the museums get enough amounts of money, so that program cessations and efficiencies really can best be decided at that level. We are reviewing with directors where they can reduce expenditures.

Mr. YATES. One quick—Mr. Chairman——

Mr. REGULA. Yes, I'd yield.

CENTER FOR AFRICAN-AMERICAN HISTORY AND CULTURE

Mr. YATES. What happened to the African-American Museum? It's supposed to go into the Arts and History Building?

Mr. HEYMAN. Well, it's sort of—the program is an active program, but the museum——

Mr. YATES. What does that mean?

Mr. HEYMAN. That means that it has traveling exhibitions that come from time to time, and the last one——

Mr. YATES. Out of what, out of Anacostia?

Mr. HEYMAN. No, no, this was one from the High Museum in Atlanta——

Mr. YATES. Yes.

Mr. HEYMAN [continuing]. On equal justice, which was a very good one. And——

Mr. YATES. Where was it shown?

Mr. HEYMAN. In A&I, in the Arts and Industries Building. And it was added to by local artists, so it was enhanced in terms of a local perspective.

Mr. YATES. But is that now considered the base for the prospective African-American Museum?

Mr. HEYMAN. If one can get established, it would be established in relationship to the original plan, which would be in that building.

Mr. YATES. And how much would that cost?

Mr. HEYMAN. Oh, I don't—I can't remember any more.

Mr. YATES. It would be significant cost? By today's standards?

Mr. HEYMAN. Oh, by today's standards, any new venture of that sort would have a considerable cost related to it.

Mr. YATES. All right.

Mr. HEYMAN. But, from my perspective, what we're doing is we are maintaining the possibility of doing that when the funds are available. And what I mean by that is we have staff. We carry on some exhibitions, and because Anacostia and the project are now merged, the collection, the legality of collecting some artifacts through Anacostia is present. So should the fiscal circumstances change sometime in the future, it won't be rebuilding all of the steps that have gone on to the present.

Mr. YATES. Thank you.

Mr. REGULA. Do you have any additional questions that you want to ask before we close?

Mr. YATES. I'll submit them for the record, Mr. Chairman.

CLOSING REMARKS

Mr. REGULA. Well, we're going to close because we have another hearing scheduled this afternoon.

Let me just say this: that I hope you'll go back on the assumption that we have a flat amount in 1997 in an allocation from our 602(b). Which means that, of course, we're probably going to have to be flat with every agency. On the assumption that we'd like to add to the $38 million, given the fact that R&R becomes a very important way of saving money for the future, we'd like you to go back and examine the priority choices that would have to be made under that scenario. When we know what we will have, we probably will want you to come back and respond on those circumstances. Now I know that's tough medicine, but, frankly, I don't have a lot of optimism that our allocation will increase in 1997 versus what we had in 1996 in this fiscal environment we're in. And we, therefore, in allocating among all the priorities that we have to serve on this subcommittee, will have a tough time taking from anywhere else.

Mr. YATES. We'll take it from forest roads, Ralph. [Laughter.]

Mr. REGULA. Mr. Nethercutt has not come in with a second on that motion. [Laughter.]

We'll have some very difficult choices to make, and I know you've got—what?—built in about a 4 percent increase in your personnel costs because of inflation, mandated inflation, cost-of-living increases, and mandated step increases; is that correct?

Mr. HEYMAN. Right. That's right.

BUYOUT AUTHORITY

Mr. REGULA. So I notice you have not had many, if any, RIFs, and most of the agencies have, reductions in force, for our lay people. Will you be able to do that?

Mr. HEYMAN. Well, at the edges there obviously will be some. I would really like to avoid, if I possibly can, massive RIFs; I really would. And that's why I was so pleased, and I keep my fingers crossed, for the buyout authority and for the potential appropriation, because that will save us from having to do that.

Mr. REGULA. Well, we'll try to protect the buyout in the CR that comes along here.

Mr. HEYMAN. That would be wonderful.

Mr. REGULA. But the tradeoff is that we don't want those positions filled, and we want to have some flexibility as we contemplate what we're going to do in 1997 in terms of your budget.

Any further questions, discussion you want to add at this point?

Mr. HEYMAN. No, sir. I don't know if I look forward to, but I expect that—I'm very pleased that I'll be engaged in the next step of this.

[The statement of Mr. Heyman follows:]

TESTIMONY OF I. MICHAEL HEYMAN, SECRETARY
SMITHSONIAN INSTITUTION
before the
HOUSE APPROPRIATIONS SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES
APRIL 23, 1996

Good Morning, Mr. Chairman and Members of the Subcommittee.

I am very pleased to be with you. This is a very exciting time at the Smithsonian. This year, 1996, we are celebrating our 150th anniversary and are working hard to make it a celebration to remember. The cornerstone of this anniversary has been the formation of the largest traveling show the Institution has ever attempted, called "America's Smithsonian." In it we showcase more than 300 of our Nation's most treasured artifacts - everything from Washington's sword and Lincoln's hat to the Apollo 14 space capsule. It is a wonderful celebration of the story that is America, and it is playing to awe-struck crowds averaging more than 12,000 people a day.

We are very grateful to you, Mr. Chairman, for participating in the opening ceremonies in Los Angeles. We have since opened in Kansas City and will be visiting every region of the country over the next two years. And mindful of the challenge by the Congress and the President to "do more with less," this exhibition is being funded by donations from the private sector. Our corporate sponsors - MCI, Intel, Discover Card, and TWA - have been excellent partners in helping us achieve our goal of a "Smithsonian without walls" and in allowing us to bring the people's treasures to their home towns. The further collaboration of local organizations and our relationship with CBS, which is providing prime-time network broadcasts, have been invaluable to the tour's success.

On August 10, the anniversary date of the enactment of the statute that created the Smithsonian Institution, we will throw a national birthday party on the Mall. Stretching from the Capitol to the Washington Monument, each museum will host outside displays, and we will provide entertainment and foods from across America. Fireworks will culminate the evening's festivities. If any Members of the Subcommittee are in town, we hope you and your families will be our guests at what promises to be a wonderful event.

This excitement is touching every person and every sector of the Institution. I believe that if we are to continue to be relevant into the next century, we must seek to broaden the diffusion of knowledge far beyond the Mall. I am pleased to report that we have made significant strides in addition to "American's Smithsonian" since we met last year toward creating a "Smithsonian without walls." We have gone "online" and are now among the most "visited" sites on the Internet. Since last May, our HomePage has logged more than 35 million hits and is now recording approximately 125,000 hits per day, substantially more than its initial average of 30,000. Not only has this made exhibitions and artifacts in our museums available to school children across America, but large portions of our research collection are also available to scholars and to industry over phone lines.

In addition, just last month the National Museum of Natural History opened its "electronic classroom," which will allow curators and experts at Natural History, as well as at the Zoo and the Smithsonian Environmental Research Center, to be electronically linked with classrooms in Alabama, Mississippi, Tennessee, and soon in Ohio. This program has been a true partnership with NASA's Stennis Space Center, Mississippi State University, and the Naval Meteorological and Oceanographic Command. I look forward to expanding this effort to other museums and schools across America.

Finally, we have increased our efforts in traveling exhibitions through the Smithsonian Traveling Exhibition Service, most notably with the Art Train, and through loans of objects and specimens to museums and researchers across the land. In 1994, more than 2,000 loans were initiated that encompassed more than 171,000 objects, an increase of nearly six percent over the loans made in the previous year. Increasing loans to facilities that can ensure the protection, security, and display of the artifacts is an excellent way to accomplish two objectives: improve public access outside of Washington and reduce the stress on storage space.

Mr. Chairman, just as we must take bold steps to improve our mission of diffusing knowledge, so must we also continue to sharpen our capabilities for world class research in order to achieve our other objective: the increase of the body of knowledge. Our capabilities for doing so are increasing at both the Smithsonian Astrophysical Observatory and the Smithsonian Tropical Research Institute by bringing on-line the submillimeter telescope array in Hawaii and in securing another privately-donated crane for research on the canopy of the tropical forest where the rich diversity of life and functions of plants offer new opportunities for study.

I would like to take just a moment to highlight a few of the advances in 1995 in which Smithsonian researchers were critical. Scientists at the National Museum of Natural History identified, through the study of the Museum's voucher specimens, a relative of the Pacific yew tree that has been used to produce taxol, a powerful drug in fighting ovarian and breast cancer. The relative, the European yew, has a much higher concentration of taxol that allows the drug to be harvested without having to destroy the tree, as was required with the Pacific yew.

In 1995, our scientists also became involved with Department of Defense entomologists who are using our collections to identify more than 15,000 insects out of 36,000 gathered in an attempt to find the disease vector of the deadly Ebola virus. The vector remains unknown, and their work continues.

I believe it is important to note these examples because although less than 2% of our collections are on display at any one time, we should never forget that all of the collections are available for public service, even if not displayed. Of our 140 million objects, more than 120 million are at the National Museum of Natural History. The bulk of these collections are used in basic and applied research by both private and public scientists. Each year, for example, scientists from USDA's Animal and Plant Health Inspection Service, the Agricultural Research Service, and the Forest Service, as well as the Defense Department use our collections to identify more than 100,000 insects. Customs and Agriculture inspectors at ports-of-entry rely, in many cases, on those collections to identify insects on arriving perishable fruit crops that must be either banned or moved to market quickly by sending an example to scientists at Natural History. And for the first time, Natural History has signed an agreement with a private sector partner that will fund botanical collection expeditions in the hopes of discovering new cures for diseases.

Also, in 1995, the Smithsonian hosted more than 600 interns from 45 states. They are involved at every level - from exhibition design to field research - and are as critical to us for their contributions of labor and creativity as are the more than 5,000 volunteers who help us run the Institution each year.

Mr. Chairman, you have been kind enough to describe us as a "Must-do" agency. I could not agree with you more. I also recognize that this means that we have a responsibility to be a "Can-do" agency. I appreciate the help that this Subcommittee has provided in accomplishing vital objectives, most notably, increasing our repair and restoration account to handle our aging facilities, particularly in light of the fiscal constraints within which the Subcommittee has had to operate.

After receiving your approval, we implemented a major reorganization of senior management at the Institution. Since our last meeting, Dr. Dennis O'Connor has become Provost to oversee programmatic activities in the arts and humanities, sciences, and public service. In establishing this position, we eliminated three assistant secretary and two deputy assistant secretary positions and brought museum and research support functions under a singular senior officer. By starting at the top and reducing layers of administrative staff and support costs, I am signaling to others in the Institution that efficiency and economy are guideposts for restructuring our entire effort.

With the Government-wide buy-out authority, we eliminated 208 positions and achieved a savings of more than $9.5 million. If additional buy-out authority becomes available, we anticipate eliminating another 200 positions through a voluntary separation program.

For such "right sizing" to be effective, we must nurture what remains because in many cases we will be asking those dedicated people to do more to accomplish our mission. It is critical that we be able to provide those who remain with pay and health benefits increases and other incentives. I hope to work with the Subcommittee and staff to preserve the savings derived from buyouts to offset our need to meet mandatory costs.

I am committed to seeking and securing additional revenues in the private sector to aid in enhancing our mission. But as you are well aware, it is nearly impossible to raise private dollars to pay for operational expenses. That is why your help in securing these costs is so critical.

For Fiscal Year 1997, we are seeking $383.7 million for the Institution's operating and capital accounts, an increase of $10.6 million over the FY 1996 conference level. Of this amount, $328.7 is for Salaries and Expenses, including approximately $18 million for mandatory cost increases. Also included is a request for $38 million for repair and restoration of buildings; $4 million for construction and improvements at the National Zoo and $13 million for general construction.

Mr. Chairman, three challenges that face us in the coming years are:
1) protecting and displaying our collections; 2) providing for the upkeep of our facilities; and 3) streamlining the Institution.

We have begun the process of streamlining. My next objective is to retain the extraordinary talent and experience found among our staff, while also increasing our ability to attract new talent in areas where it is needed. I am currently working with the Office of Personnel Management to develop a pilot project to increase management flexibility, provide for employee advancement, and allow for the creation of a unitary personnel system for the Smithsonian.

Finally, as to our other challenges, I would like to ask Richard Rice, Senior Facilities Services Officer, to brief you on our plans for repair and renovation of existing facilities, as well as on our plans to bring on line two new facilities that will protect our artifacts through improved storage capabilities and greatly increase their accessibility to the public.

Mr. REGULA. The committee's adjourned until 1:30 this afternoon.

[The information follows:]

ADDITIONAL COMMITTEE QUESTIONS

Priorities

Question 1: Your budget consists of increases of \$20.5 million in operations (\$2.4 million program increases), \$750,000 for Zoo construction (\$600,000 program increase), \$4 million for the Repair and Restoration account and \$9 million for both the new American Indian mall museum and the new Air and Space Extension at Dulles Airport. This Committee fully expects a lower allocation than the current year's. With this in mind, can you prioritize these increases and offer offsets within existing accounts for your two highest priorities?

Answer: The Smithsonian's total requested increase for FY 1997 is less than \$11 million and less than 3% of funds available in FY 1996. Nearly 90% of its requested increase in the Salaries and Expenses account is for mandatory costs of pay for the staff that operates programs serving millions of visitors to the Mall and people in other parts of the country, as well as those who reach the Institution electronically. This basic level of activity stimulates resources in the private sector, most amply demonstrated in this sesquicentennial year by funding for *America's Smithsonian*, the traveling exhibition that is taking the Institution to cities in all corners of the country, and a number of other television, publication, and scholarly programs that help to remind the Nation of its heritage and bring together its people.

The small increase requested in the Repair and Restoration account is consistent with the recommendation of the Commission on the Future of the Smithsonian Institution, with the action of this Committee to accelerate work on the deteriorating buildings that house Institutional collections and activities, and with the responsibility of the Institution to safeguard the assets--the buildings and the collections--with which it has been entrusted.

The Construction request is less than half of that for FY 1996. Its prime components are planning funds for the Mall museum building of the National Museum of the American Indian and for the National Air and Space Museum Center at Dulles International Airport, both of which represent fulfillment of statutory obligations and both of which are leveraging major increments of funding in the non-Federal sector in order to protect and display two unparalleled collections.

All of the components of the very modest over-all increase that has been requested in the FY 1997 budget are designed to stabilize the essential infrastructure of the Smithsonian in order to attract partners--individuals, corporations, and other levels of government--to support a lively range of public programs without additional burdens on limited Federal resources.

Our highest priorities are to meet mandatory increases and to fulfill Institutional obligations. Off-sets in other areas of such magnitude would require elimination of programs and activities that would diminish the capacity for public service by the Institution.

Mandatory Increases

Question 2: Your budget request includes a $20.5 million increase for salaries and expenses. Of that $18.3 million is directly associated with fixed costs. Are these costs all associated with fiscal year 1997 increases or are there costs from fiscal year 1996 included?

Answer: Of the $18.3 million requested to cover mandatory increases, $2,627,000 is required for the cost of FY 1995 locality pay and $1,079,000 to annualize the FY 1995 pay raise. In addition, $5,337,000 is required for the costs of the FY 1996 pay raises. Of the remainder, $6,014,000 is for pay proposed for FY 1997 and related costs, while $3,276,000 is for FY 1997 costs associated with utilities, communications, postage, and rent.

Question 3: The budget includes an increase of $1.2 million for central rental costs. Assuming certain conditions are met, the Woodrow Wilson Center might be moving to a new building downtown. They claim that by vacating their current space in the Castle the Smithsonian should save up to $700,000 in current rented space that would no longer be needed. Is this an accurate statement?

Answer: If the Woodrow Wilson International Center for Scholars (WWICS) space were used entirely to house Smithsonian staff currently in leased space, the Smithsonian could potentially save up to $750,000 in annual rent costs. However, the major systems in the Smithsonian Castle building are in serious need of replacement. The work, planned in the Repair and Restoration of Buildings (R&R) account, will require the phased relocation of staff now in the Castle out of the construction zone. The project will take several years to complete. The Institution plans to use the space now occupied by the WWICS as "swing space" to house temporarily the staff dislocated by the R&R project. At the end of the construction period, the Smithsonian will look at various options for permanently relocating staff from leased space, as well as consolidating staff now occupying space in the Mall museums.

Submillimeter Telescope Array

Question 4: There is a request for additional program funding in the amount of $2.4 million. Of this amount $720,000 is for the operation of the submillimeter telescope array in Hawaii. What would be the consequence of not funding this item in fiscal year 1997?

Answer: The first astronomical tests of the submillimeter telescope array are scheduled to take place at Haystack Observatory in Massachusetts in January 1997, followed by a limited observing schedule. The equipment will then be shipped to Hilo, Hawaii, the location of the base camp, and finally to the mountain top on Mauna Kea where the array is being assembled. The location in Hilo is essential because staff cannot work continuously in the thin atmosphere at the summit. The funds sought will cover the cost of operating these sites, and include supplies and utilities. Without these funds the schedule of checkout and commissioning of the submillimeter array would be seriously delayed and would result in significantly higher overall project cost.

Question 5: Can this amount be phased?

Answer: The requested amount represents the next step in the phased transition to the operation of the array. The impact of delays is described in the answer to Question 4 above.

National Museum of the American Indian Operations

Question 6: Over the past several years the Federal investment in the three National Museum of the American Indian (NMAI) facilities has grown to approximately $63 million plus operating costs. The projected Federal investment in the Mall museum over the next three years is projected to be another $78 million and by the year 2000, the annual operating costs for all three facilities will be $40 million.

I mention this because most of your operating request for an additional $600,000 and 7 new FTEs is for enhancements such as increasing public programs, new exhibit planning, outreach and training. While these may be worthwhile programs, given the fact that this committee's allocation will most likely be below the 96 level is it possible to either delay, phase or raise private dollars for these activities?

Answer: Three of the positions and $182,000 of the funds requested for 1997 will be used to enhance visitor services at the Heye Center in New York. Two of these positions will be used to provide instruction and guidance directly to museum visitors and the third will provide assistance in exhibition preparation and maintenance now that our public exhibit program has begun. Delay or phasing of these added resources would mean that museum visits would be less meaningful than we would like for a significant number of people, especially school groups. The interpretive and exhibits maintenance staff requested are sorely needed now to meet public demands.

Four of the positions and $328,000 requested will be used to establish a community services office as an organizational component of the museum in order to:

- provide Native American collaboration for Mall Museum programs and exhibits;
- provide access to NMAI collections for tribes and organizations located in isolated areas beyond the east coast site of NMAI's physical facilities;
- provide impetus for collaborative funding of programs and the raising of non-federal dollars for programmatic activities;

- provide Native American perspectives on their history and contemporary life to Museum visitors.

Again, delay or phasing of these services would slow the NMAI in its mission of advancing knowledge and understanding of Native cultures and providing cultural information on tribal artifacts to Native people.

Seeking private dollars to supplement operational costs is an option the Museum will always try to use. Once staff is established and construction completed, fund raising for programmatic efforts can complement and expand established activities.

National Museum of Natural History East Court

Question 7: An additional $1.1 million and 6 FTEs are requested for the National Museum of Natural History East Court project. Can you prioritize this request?

Answer: Priority 1: This request includes 6 FTEs and $426,000 to provide a portion of the facility management expenses, including custodians and engineer system repair positions and operational supplies and contracts such as elevator maintenance, necessary to clean and maintain this new building. Additional facility management staff and other costs associated with occupying and maintaining the building will be requested in future budgets.

Priority 2: Funding in the amount of $649,000 will be used to procure the telephones and a portion of the data system for the building's communications network. The timely occupancy of the new building and the provision of relocation space for the uninterrupted progress of the total heating and air conditioning replacement in the existing building (Major Capital Renewal Program) are dependent on the prompt installation of these communications systems. Funding in FY 1997 is vital so that these systems can be contracted for in advance of construction completion and installed as soon as the building is finished. The remainder of the data system will be procured as early as possible in FY 1998.

Construction and Improvements, National Zoological Park

Question 8: The fiscal year 1996 Conference agreement recommends that construction funds for the National Zoological Park, including Front Royal, be limited to repairs and rehabilitation not for new exhibits or expansions. The fiscal year 1997 budget recommends an additional $750,000. What is the current backlog of maintenance repairs needed at both facilities?

Answer: The current backlog of maintenance repairs needed at both facilities is approximately $19 million.

Question 9: What will the additional $750,000 be used for? Please be project specific.

Answer: The additional $750,000 will be used to replace failing mechanical and electrical equipment and upgrade fire protection systems at both facilities. FY 1997 Zoo R&R projects include replacing the failing water treatment system at Beaver Valley; increasing electric service to the Bird House and outside exhibits that are insufficient for winter heating loads; replacing the emergency generator at the Bird House, which has exceeded its useful life; replacing failing walls and leaking roofs at the Deer Area; replacing winter storm damage at the Conservation Research Center buildings, including re-building several old structures that collapsed from the excessive snow; renovating the Mane Restaurant's heating, ventilation, and air conditioning system and repairing the restaurant's roof, exterior skin, and windows.

Question 10: Over $3 million has been appropriated to date for the new Grasslands exhibits. This budget requests $600,000 to complete Phase I, the Panda Plaza and Bison Grasslands area. What would be the consequence of not completing this phase of the project? Is there any usable space available now as a result of the $3 million?

Answer: The consequence of not funding the $600,000 for completion of Phase I would be elimination of construction work necessary to bring the Plaza area into compliance with accessibility requirements for wheelchairs and handicapped visitors. Additionally, increasing the Plaza area to accommodate large crowds would not be possible, and the educational component of the Grasslands Map would be eliminated.

There is no usable space as of now, but construction of the Phase I site is scheduled to begin July 1996. During construction, the animals that will fill the Phase I exhibit will continue to be housed in substandard facilities until its completion.

Question 11: What specific projects did the $3 million fund?

Answer: Existing funds are being used as follows:

Design for Phases I-III	$ 953,000
Construction for Phase I only	$2,326,000

Phase I includes the "American Prairies" exhibit with bison, prairie dogs, the garden of medicinal plants, and rest rooms.

Question 12: Is the planning and design work completed for all three grassland habitats?

Answer: Planning and design are complete for Phase I and design development is complete for Phase II. Further work on Phase III is on hold, pending funding and budget decisions.

Question 13: What are the total construction and operations costs associated with the completed Grassland exhibits?

Answer: The total construction and operations costs associated with each phase are as follows:

Phase	Construction Estimate	Operations Costs
Phase I - American Prairie	$2,926,000	No increase
Phase II - Domestication Area*	$1,700,000	No increase
Phase III - African Savannah	$4,000,000	Not fully determined

* If the Farm option is included in the Domestication Area, the additional construction costs of $1.2 million and operating costs will be funded with non-Federal funds.

Question 14: The budget contains $3.4 million for both the Rock Creek and Front Royal facilities. Are all these projects repairs and basic maintenance as opposed to new projects or facilities? Please be project specific.

Answer: All projects included in the $3.4 million are for repair and basic maintenance of the facilities and exhibits, as opposed to new projects or facilities. Projects will be selected from the following list of R&R projects that reflects requirements for FY 1997. Items not funded in FY 1997 will be added to Zoo R&R requirements programmed for future years.

National Zoological Park

Draft R and R List

5/3/96

Area	Item	1997	Comments
Bear Line/Lower	Repair roof	$35,000.00	Roofs are cracked and leak into dens and work areas. Freezing in winter increases the damage
Bear Line/Upper	Repair roof	$35,000.00	Roofs are cracked and leak into dens and work areas. Freezing in winter increases the damage
Bear Line Upper	Replace broken storm sewer	$100,000.00	This needs to be replaced from UBL to Beaver Valley. In winter months storm water cannot run off the walkways at the UBL. This water freezes and creates a severe safety hazard.
BEAR	**$170,000.00**		
Beaver Valley	Replace Storm Grates	$15,000.00	All storm drains along Beaver Valley walk does not conform to handicap standards.
BEAVER VALLEY	**$15,000.00**		
Bird House	Upgrade Electric Service to main building, outdoor exhibits, great flight cage, eagle cage, upper and lower bird ponds	$30,000.00	
Bird House	Emergency Generator	$17,000.00	The generators are old and deteriorating and in many cases not large enough to carry all the necessary loads.
BIRD HOUSE	**$47,000.00**		
Bison Yard	Upgrade Electrical Service	$30,000.00	This work should be done when camels are relocated.
BISON YARD	**$30,000.00**		
Boiler Rm/GSB	Replace Condensate Line	$60,000.00	The deteriorated condensate line from GSPB to the Boiler need replacing. If condensate is not returned this causes the need for additional makeup which in turn decreases the life expectancy of the new boilers.
Boiler Room	Replace ladder to generator	$25,000.00	Existing one does not meet OSHA standards
BOILER PLANT	**$85,000.00**		

National Zoological Park

Draft R and R List

5/3/96

Area	Item	1997	Comments
Commissary	Resurface floor/refrigerated prep rm	$15,000.00	Floor is old and peeling. Possible safety issue.
COMMISSARY	**$15,000.00**		
Compactor Site	Install Sanitary Drain	$25,000.00	Support Services needs an area to clean Vacall & garbage truck where wash-off will go into a sanitary sewer. Right now it runs off into Rock Creek.
COMPACTOR	**$25,000.00**		
CRC	Bldgs 47, 28, 5/8 & 4/9	$145,000.00	Upgrade electric service
CRC	Repair seven residences	$10,000.00	Install replacement windows
CRC	Administrative Bldg	$12,000.00	Install fire doors
CRC	Barn roof	$45,000.00	Replacement/repair
CRC	Bldg 179	$230,000.00	Renovate to provide on-site quarantine for birds & small mammals
CRC	Hardy bird complex	$30,000.00	Replace overhead wire/in-house
CRC	Barns	$85,000.00	Repair roof support/in-house
CRC	Bldg 4	$15,000.00	Renovate south wing for small carnivores & marsupials/in-house
CRC	Administrative Building	$85,000.00	Install new HVAC
CRC	Miscellaneous Bldgs & Roofs	$25,000.00	Exterior painting & repairs
CRC	Bldg 16	$225,000.00	Renovate
CRC	Bldg 17	$225,000.00	Renovate
CRC	**$1,132,000.00**		

Draft R and R List

Area	Item	1997	Comments
Deer Area	Replace/repair walls & roofs	$400,000.00	All the roofs are badly damaged and leaking. Major work required to allow safe use of bldgs
Substation & Deer Area	Provide permanent upgraded electrical service to Deer Area & FONZ classroom	$60,000.00	Design and installation
DEER	**$460,000.00**		
Elephant House	Upgrade electrical service & distribution	$50,000.00	
Elephant House	Replace Office HVAC	$50,000.00	
ELEPHANT	**$100,000.00**		
Great Ape House	Resurface cage floors	$85,000.00	All the floors are original 15 yrs old. Many are cracked, peeling, etc. Need total resurfacing.
GREAT APE	**$85,000.00**		
GSPB	Replace hot water heater for office areas	$10,000.00	
GSPB	Repair wall leaks & column capitals	$50,000.00	
GSPB	**$60,000.00**		
Hardy Hoof	Upgrade Electric Distribution	$30,000.00	
HARDY HOOF	**$30,000.00**		
Kangaroo Yard	Upgrade Electric Service & distribution	$30,000.00	
KANGAROO YD	**$30,000.00**		
Lion/Tiger Moat	Replace filtration system & pool heaters	$40,000.00	Existing system is 21 years old. System is out of service due to major malfunctions and design problems.
Lion/Tiger	Replace Emergency Generator	$15,000.00	
LION/TIGER	**$55,000.00**		

Area	Item	1997	Comments
Mane Restaurant	Renovate HVAC, exterior repairs to bldg and replace fuse panel on lower level	$700,000.00	Design to be completed April 30, 1996.
MANE RESTAURANT	**$700,000.00**		
N.Am. Mammals	Upgrade Electric Service & distribution	$30,000.00	
N. AM. MAMMALS	**$30,000.00**		
Panda House	Emergency Generator	$25,000.00	The generators are old and deteriorating and in many cases not large enough to carry all the necessary loads.
PANDA	**$25,000.00**		
Police Stations	Emergency Generator - modify exhaust	$7,000.00	The generators are old and deteriorating and in many cases not large enough to carry all the necessary loads.
Police Stations	Upgrade Police air handling unit	$50,000.00	
Police Station	Upgrade Electrical Distribution	$25,000.00	
POLICE/HEALTH	**$82,000.00**		
Propagation Bldg.	Upgrade Electric Service	$30,000.00	
PROPAGATION	**$30,000.00**		
Quarantine Building	Upgrade HVAC	$300,000.00	
QUARANTINE BLDG	**$300,000.00**		
Sea Lion/Grey Seal	Upgrade Water Treatment System	$125,000.00	The existing filter media is 19 years old and past life expectancy. The existing media does not adequately filter the exhibit pool water.
Seal Bldg	Emergency Generator	$4,000.00	The generators are old and deteriorating and in many cases not large enough to carry all the necessary loads.
SEAL/SEA LION	**$129,000.00**		

Area	Item	1997	Comments
Visitor Center	Auditorium Repair/replace ceiling speaker	$2,000.00	
Visitor Center	Auditorium Replace marred wall panels	$10,000.00	These are located at the rear of the auditorium
Visitor Center	Emergency Generator	$4,000.00	The generators are old and deteriorating and in many cases not large enough to carry all the necessary loads.
VISITOR CENTER	**$16,000.00**		
Zoo Wide	HVAC Monitoring System	$1,000,000.00	This system is required in all major bldgs and exhibits. It will provide a major savings in energy & labor costs. I will also allow the operation of our HVAC equipment more effectively & efficiently which will prolong the life of the equipment.
Zoo Wide	Clear Stoppage in Storm/Sewer Lines	$50,000.00	Storm & sewer distribution lines need to be checked for stoppage and unstopped if necessary. Repair existing concrete storm drain ditches. Replaced crushed lines where required.
Zoo Wide	Replace Perimeter Gates	$300,000.00	Gates should be removed, taken off site and remove all lead base paint. Repainting and retrofit hinges & locking systems.
Zoo Wide	Upgrade Steam Distribution & Tunnel	$150,000.00	Upgrading of the steam line and tunnel is long overdue. With the new boilers we need to replace distribution lines then we should be home free for 15 to 20 years.
Zoo-Wide	Electrical Distribution System	$100,000.00	Replace 4,160 volt electrical distribution system. Approx. 25% of the NZP electrical distribution system is still on the old 4,160 volt system. The rest of the Zoo is on a 13,000 volt system. An upgrade will
			produce more efficient operation as well as an energy savings.
Zoo Wide	Annual Painting Maintenance	$50,000.00	
Zoo Wide	Inspect ductwork	$20,000.00	All ducts in bldgs need inspection for mold, blockages, poor ventilation. Possible health issue for staff.
Zoo Wide	Upgrade Fire Alarm, Detection and Suppression Systems	$700,000.00	Existing systems do not meet code requirements and do not provide the required level of safety for public, employees and protection of the living collection.
Zoo Wide	Tree Maintenance	$85,000.00	
Zoo Wide	Irrigation System Maintenance	$25,000.00	
Zoo Wide	Turf and Soil Maintenance	$60,000.00	
Zoo Wide	Security System Maintenance &	$70,000.00	

Draft R and R List

Area	Item	1997	Comments
Zoo Wide	Upgrade Traffic Signs	$50,000.00	
Zoo Wide	Upgrade Graphics in One Zoo Area	$100,000.00	
ZOO WIDE	**$2,760,000.00**		
	Total	**$6,411,000.00**	

Repair and Restoration of Buildings

Question 15: The budget request for Repair and Restoration of Buildings is $38 million, $4 million above the fiscal year 1996 level. The recent report by the Smithsonian's Commission on the Future of the Institution recommended a $50 million a year level in order to deal with the $250 million backlog of critical maintenance needs among the various museum buildings. Did OMB cut this request back to $38 million?

Answer: The Smithsonian requested the full $50 million in its FY 1997 budget submission to OMB. In its final passback OMB allowed $38 million.

Question 16: The report indicates that unless serious attention is paid to this problem, many of the larger, more popular museum facilities would surely be forced to close to the public. With this real threat in mind, how can the Smithsonian justify spending another $80 million for the third Museum of the American Indian at this time?

Answer: Like many organizations, the Smithsonian must address multiple obligations and competing priorities. Maintenance, repair, and restoration of the historic public buildings that it occupies is high among these, as is the fulfillment of obligations it has undertaken with the express authority of the Congress to preserve and interpret the national collections. The third structure for the National Museum of the American Indian--the Museum building on the Mall--represents completion of the facilities program outlined in P.L.101-185 and designed to house and display the comprehensive and irreplaceable collections of that museum. Fundraising for one-third of the estimated $110 million cost of construction is almost completed. As has been done with design funds from both Federal and non-Federal sources, it is expected that both kinds of funding will be applied in phases to construction of the Museum, expected to be opened to the public in 2002.

Question 17: The breakdown of how the $38 million will be spent includes several categories including Major Capital Renewal which is only allotted $9 million. How much of the $38 million is going specifically to the most seriously impaired museums vs routine maintenance and repair?

Answer: All of the funding included in the Major Capital Renewal is planned for the buildings in the most serious condition: $6 million for the Natural History Museum, $1 million for the American Art and Portrait Gallery, and $2 million for the Smithsonian "Castle." In addition, another $4 to $5 million reflected in the other categories is planned for urgent work in the Natural History Museum and the American Art and Portrait Gallery building.

Question 18. The budget mentions four buildings; which museums are you referring to in the budget?

Answer: The four buildings whose poor conditions concern us most are the National Museum of Natural History, the American Art and Portrait Gallery Building (also known as the Patent Office Building), the Arts and Industries Building, and the Smithsonian Institution "Castle" Building.

Question 19: Can you supply for the record a list in priority order of the most seriously impaired buildings and the costs associated with each?

Answer: Beginning with the building in the most critical condition, the four buildings are listed in order of urgency of renewal, with the current estimated cost of repairing identified deficiencies:

	Estimated Deficiencies ($Millions)
National Museum of Natural History	110
American Art and Portrait Gallery Building	42
Arts and Industries Building	22
Smithsonian Institution 'Castle' Building	33

Question 20: How will the $33.9 million appropriated by this committee for fiscal year 1996 be used?

Answer: The funding appropriated for FY 1996 will be used as follows:

Category	$000s
Major Capital Renewal	$7,000
General Repairs	5,770
Facade, Roof and Terrace Repairs	9,885
Fire Detection and Suppression	825
Access, Safety and Security	5,270
Utility System Repairs	3,510
Advanced Planning and Inspection	1,694
Total	$33,954

National Museum of the American Indian, Mall Museum

Question 21: The construction budget contains $4 million to complete the planning and design work for the National Museum of the American Indian Mall building. The conference report for fiscal year 1996 clearly states that "the Smithsonian is to develop alternative cost scenarios for the proposed mall museum which should include downsizing of the building and a decrease in the amount of Federal funding." Is the Smithsonian developing this information?

Answer: The National Museum of the American Indian's Mall building plans have been scrutinized to assure that the building's capacities most efficiently meet expected public demand and design standards suitable to the location. Consequently, the building will occupy only 24% of the site, considerably less than the National Gallery's East Wing on the comparable site across the Mall. NMAI's 250,000 square feet would be 26% smaller in area than the National Gallery's 340,000 square foot East Wing. In fact, the ratio of square feet of public area to expected visitor levels for the NMAI Mall Museum will be the lowest of any museum on the Mall. Given our experience in accommodating the needs of visitors to the Mall and the well-known public enthusiasm for newer and highly popular museums, such as the Holocaust Museum and the Gallery's East Wing, we believe the building cannot be downsized further. The Institution's recommendation is to continue to maximize public space allocations within the already pared back plan, keeping within the original $110 million estimate. In view of our responsibilities to the public and the particular design requirements for building on that highly visible site, we believe the most appropriate option is to keep the present space configuration and budget.

Question 22: The 1997 budget lays out a construction schedule for the NMAI mall museum and recommends $32 million in fiscal year 1998, $26 million in fiscal year 1999 and $6 million in the year 2000. This is the original plan that calls for a $80 million Federal contribution to this $110 million project. It would appear that the Smithsonian has not attempted to restructure this project in an effort to raise more non-federal dollars as directed by the conference report for fiscal year 1996. Is this accurate?

Answer: Nearly all of the Smithsonian's original commitment of $37 million is pledged or in hand following four years of broad and careful cultivation of potential donors. Despite considerable effort to attract foundation and corporate support, most of the funding has come from individuals. Restructuring the fund-raising goal at this time would require lengthy 'front end' efforts to identify new prospects and would delay the project, resulting in increased construction costs. This project is a highly visible public/private partnership by the Smithsonian, and donors have made commitments relying on the Congressionally-approved Federal match. We fear that any restructuring may breech trust with existing donors and damage prospects for ongoing and future public/private partnerships.

Question 23: Because of a reduced federal allocation, is it not more critical to address the $250 million backlog of serious maintenance, which by your own admission threatens the closure of museums first before constructing two brand new facilities?

Answer: As complex as the Smithsonian may appear, it has in reality only three components--staff, collections, and facilities--with which to fulfill its mandate "for the increase and diffusion of knowledge."

The knowledge that is increased and diffused is derived primarily from the Smithsonian's unique and varied collections that are housed in the facilities of the Institutions, some of which are museums. The first line of defense in preserving collections is proper environments. The most basic of these provides shelter from the elements; the most sophisticated offers controlled tolerances of temperature, humidity, light, and particulate. The physical integrity of structures is the most effective means of addressing the former, while modern internal systems are the foundation for the latter. Most Smithsonian collections require tightly-controlled systems, but all must be housed in sound buildings that have good mechanical systems. At present, some are not.

Reducing the maintenance backlog is central to assuring that Smithsonian collections are secure, as well as accessible to the public and to the scholarly community. At the same time, large parts of certain collections, such as those of the National Museum of the American Indian (NMAI) and the National Air and Space Museum (NASM) are housed in buildings of such inadequacy or in places so isolated as to make large parts of the collections not only inaccessible, but unusable by those from whose cultures they are derived and by specialists in the disciplines they represent.

In the case of NMAI, the Subcommittee has provided a solution for a substantial portion of the collection that assures its preservation. However, in order to complete that task, as well as to meet the commitments assumed in the authorizing legislation, designed in part to make the NMAI collection fully accessible, its Mall museum building must be completed.

In the case of NASM, the Air and Space building on the Mall houses some of the key objects of aviation and space flight, but its full history cannot be told because large objects are stored in remote areas at Dulles or in Arizona, and the remainder of the collection is poorly housed in leaky World War II Quonset-type buildings in Maryland, to which access must be limited for reasons of safety. Construction of the extension will improve exponentially the public's accessibility to the collections, open extraordinary new opportunities for sharing knowledge through exhibition and public education, and assure the preservation of the objects that have so defined America's technology and culture in the 20th century.

Question 24: Over the last several years nearly $55 million federal construction dollars plus $26 million in additional operating costs have been appropriated specifically for the Custom House and Suitland NMAI facilities. Clearly the federal government has demonstrated a strong commitment to this collection.

But, given the shrinking federal allocation for this subcommittee can you give this committee a compelling reason why critical health and safety, maintenance, and other backlog needs of the existing Smithsonian facilities should be deferred in order to construct a new $110 million facility at this time?

Answer: The commitment of the Federal Government to all Smithsonian collections has been consistently demonstrated by authorizations providing for their acquisition, by appropriations for new or improved facilities in which to house them, and by funding for their care and conservation. Approval of funds sought in the current request for health and safety, maintenance, and other backlog needs of Institutional facilities will be a further manifestation of a commitment that cannot be deferred if those collections are to be preserved adequately for this and future generations of Americans.

Congressional approval of authority for the Smithsonian to acquire the collection that is the basis of the National Museum of the American Indian (NMAI) was grounded in the incomparability of that collection and its imperilled condition. Additional provisions in P.L.101-185, which granted acquisition authority, recognized that new construction would be required in order to sustain the collection and made it widely available to the public.

The Institution would be remiss in its commitment to preserve the NMAI collection if it did not seek funding for the purposes outlined in the authorizing legislation. In keeping with the concept of partnerships for construction of NMAI facilities that was established in the original Act, the Smithsonian will complement the $4,000,000 requested with $3.4 million in non-appropriated funds so that design of the NMAI's Mall museum building can be completed.

Of the total of $110 million estimated for construction, the Institution expects to seek appropriated funding of $73.3, or two-thirds of its cost, of which $5.3 million has been appropriated to date. Assuming approval of the current request for $4,000,000, the balance of $64 million will be sought in increments over three years beginning in Fiscal Year 1998.

The remaining one-third of the cost of construction ($36.7 million) is being sought in the private sector. Approximately $32 million is in hand, and has been raised to a major extent on the basis of the partnership with the Federal Government.

Question 25: Should additional dollars not be available to this subcommittee because of a reduced allocation for fiscal year 1997, in which existing budgets within the Institution would you recommend we find the money to fund this new facility?

Answer: Funding for design of the National Museum of the American Indian building on the Mall cannot be identified elsewhere in the Smithsonian's FY 1997 budget request. The Smithsonian engages in a nearly-year-long process to examine its needs and priorities in the light of existing fiscal realities before submitting its budget request to Congress. The components that constitute what becomes a single appropriation are carefully honed and distinct from each other. In addition, they serve specific purposes that, while related, are not inter-changeable, and do not lend themselves to shifts of funds from one another.

The total request of the Institution for FY 1997 is only $10.6 million more than its FY 1996 appropriation. The increase of $20.3 million in the Salaries and Expenses (S&E) Account is, except for a very modest $2 million in essential program enhancements, requested to meet the costs of mandatory pay, utilities, and rent. S&E provides funds for the Institution's basic operating infrastructure. Failure to provide for these mandatory expenses directly impacts services to the public because they are costs that must be paid. A domino effect sets in: reducing the programs that define the Institution and attract visitors reduces non-appropriated income from visitor services, such as shop and restaurant revenue, as well as donations. Income from these sources complements appropriated funding and supports higher levels of public activity, particularly in exhibitions and education.

The FY 1996 appropriation provided a crucial level of improvement to the Repair and Restoration of Buildings Account (R&R), and approval of the $38,000,000 requested for FY 1997 is critical to finally allowing the Institution to make inroads on the backlog of needed work on its historic buildings in order to properly house its collections and provide for the health and safety of its visitors and staff.

The Zoo construction account includes $600,000 to complete Phase I of the Grasslands exhibit. It also includes funds totaling $3.4 million for repairs and improvements to the roadways, facilities, and building systems at both Rock Creek and Front Royal.

In addition to the $4,000,000 for NMAI design in the Construction account, that account also includes $4,000,000 for alterations and modifications that will address a series of programmatic needs of other Smithsonian museums and research institutes and a request for $5,000,000 for design of the Air and Space Museum Extension at Dulles. Like the NMAI, the NASM Extension is a Congressionally-authorized partnership designed to mitigate the large amounts of Federal funding that otherwise would be required to protect unique collections by leveraging funding in the non-Federal sector. Approval of that request is central to continuing the commitments made by the Commonwealth of Virginia for the project.

National Air and Space Museum Dulles Center

Question 26: The budget recommends $5 million to continue the planning and design work for the Air and Space Museum Extension near Dulles Airport in Virginia. The Conference report for the current fiscal year directed that the $1 million provided should be used to complete a master plan and initiate detailed planning and design to allow for the development of a proposed financial plan for the extension. The management plan should include the detailed phasing of the project and commitments by the Commonwealth of Virginia and the Smithsonian toward construction and operation of the facility. What is the status of this plan?

Answer: The FY 1996 funding to support the completion of the master plan and the schematic design phase of the Extension project was only recently made available with the passage of the FY 1996 Omnibus Appropriations bill in April 1996. It is projected that the final draft of the master plan will be submitted to the Smithsonian Board of Regents in late 1996; the contract for schematic design will be let before the end of the current fiscal year. This work, along with fund-raising analyses already under way, will provide the level of detail necessary to craft a sound financial plan for the construction and operation of the new facility at Dulles. An initial report on financial planning will be submitted to the Regents for their review in 1997.

Question 27: Does the Smithsonian have firm legal and binding commitments from the Commonwealth of Virginia and the private sector interests about financing the construction and operations of this facility?

Answer: A Memorandum of Understanding (MOU) between the Smithsonian and the Commonwealth of Virginia has been signed by Secretary Heyman and Governor Allen. The MOU, dated April 22, 1996, calls for the Institution, in consultation with Virginia, to prepare a budget and plan of financing. In the agreement, Virginia commits to provide $6 million in appropriated funds for construction, specific access, site work, and infrastructure items valued at approximately $40 million, bonding authority up to $100 million, and a $3 million interest-free short-term loan. Virginia will also provide assistance to the Smithsonian with its fund-raising campaign, working with business groups and non-profits operating in the Commonwealth. An analysis of fund-raising potential to support the Dulles project is already under way.

Reorganization and Restructuring

Question 28: What is the current status of your reorganization and restructuring plans?

Answer: The Institution began a series of reorganizations and restructurings in 1992. In that year organizations were realigned and consolidated in order to strengthen and mobilize resources and to eliminate artificial boundaries between units that did not make functional or fiscal sense. In 1993, the Institution reallocated resources within and between organizational units based on changed priorities and critical needs for funding. In 1994, some 206 positions were eliminated through a Voluntary Separation Incentive Program in order to meet continued constraints mandated by budgetary and personnel ceilings. In 1995, his first year in office, the new Secretary implemented a reorganization of central administration which eliminated a layer of senior management and redistributed resources to fill critical needs in the program units. Finally, in 1996 the Institution is continuing to delayer levels of management and will implement a second Voluntary Separation Incentive Program in order to meet reductions in Federal personnel levels.

Question 29: What savings are associated with this downsizing effort to date?

Answer: As a part of the Voluntary Separation Incentive Program conducted in 1994, the Institution reduced its budget by almost $10 million over a two year period. In addition, the Institution has decreased its FTE ceiling by 227 positions.

Question 30: How have those savings been used?

Answer: As stated in the answer to question 29, the Institution reduced its budget by almost $10 million in FY 1995 and FY 1996 as a result of the FY 1994 Voluntary Separation Incentive Program. The savings were withdrawn through the appropriation process.

Question 31: Can you provide for the record the levels of FTE's for the past five fiscal years including this fiscal year 1997 budget?

Answer: The authorized FTE ceilings for the Smithsonian for the past five years, as issued by the Office of Management and Budget, are as follows:

Fiscal Year	FTE	Change
1993	4,825	
1994	4,752	-73
1995	4,645	-107
1996	4,598	-47
1997	4,537	-61

Question 32: What FTE level are you required to meet by 1999 under the President's Executive Order to reduce the federal workforce and how do you intend to meet that target?

Answer: The Institution is required to meet an FTE level of 4,303 by 1999. This reduction, a decrease of 234 FTE over the FY 1997 request, will be achieved through the use of the FY 1996 Voluntary Separation Incentive Program (buyouts), hiring freezes, attrition, and reductions in force, as necessary.

Voluntary Donations

Question 33: The Smithsonian has experimented over the past several years with voluntary visitor collections, the concept of admission fees for certain facilities and museum shops similar to the very successful efforts at the Metropolitan Museum of Art in New York City. What is the status of these efforts?

Answer: Under a climate of fiscal austerity and as a means for testing whether the public's willingness to donate was substantial, the Institution implemented a voluntary donations demonstration project. The initial period of the demonstration was April 1 to October 31, 1993, and included the National Air and Space Museum, the National Museum of American Art, the National Portrait Gallery, the National Zoological Park, and the Anacostia Museum.

Although October 31, 1993 was the scheduled end-point for the demonstration period, the donation boxes currently remain in the test facilities. After rather unsuccessful results in terms of the amounts collected, a decision was made to redesign the boxes to make them more attractive, as well as to move them to more prominent points within the museums. The result was an increase in voluntary contributions. Nevertheless, the improvements did not yield substantial amounts. In the three years since April 1, 1993 we have raised approximately $99,000.

This past year the Senate Appropriations Subcommittee on the Department of the Interior and Related Agencies requested that the Board of Regents of the Smithsonian Institution report on the feasibility and cost effectiveness of admissions fees by June 1, 1996. The Subcommittee indicated that, as part of the effort, the Institution should consider 1) the feasibility of a program that involves weekly and annual passes and 2) pricing strategies that would be reasonable, yet responsive, to the variety of Smithsonian visitors. The Board of Regents took up this subject at its May meeting and will forward its report to the Senate by June 1.

Buyout Authority

Question 34: The Committee has included new buy out authority for the Smithsonian in the current Continuing Resolution. Should this be signed into law by the President, can you project how many individuals will take advantage of this opportunity?

Answer: It is currently projected that approximately 130 people will participate in the Voluntary Separation Incentive Program authorized in the Institution's FY 1996 appropriation.

Question 35: What are the savings associated with these buyouts? How will the savings be utilized?

Answer: Savings associated with the incentive program are estimated at $6.5 million. These resources will be applied by the Smithsonian museums and research institutes to continue their basic operations, defray unfunded inflation and mandatory pay and utility costs, and to high-priority needs of collections, exhibitions, research, and education activities.

Question 36: Will these positions be eliminated?

Answer: The positions vacated by those who accept voluntary separation incentives will in most cases be eliminated. In a few cases, when continuation of a function is essential, the position may be filled at a lower pay grade.

Barney Studio House

Question 37: At last year's hearing Secretary Heyman was discussing the Smithsonian's strategic planning process. As one of the examples of downsizing, he mentioned that the Regents had given their approval to dispose of the Barney Studio House. What is the current status of this plan?

Answer: The Institution is continuing its efforts to sell the property. While there is still considerable interest on the part of potential buyers, the Institution has not yet received an offer.

The Institution has been consulting with the Advisory Council on Historic Preservation about the sale of the property. When the Advisory Council's final comments, which are expected in June, are received, the Institution can proceed with disposal of the property.

Traveling Exhibitions

Question 38: Can you provide for the record the activities of the traveling exhibitions this past year?

Answer: The record for the last year follows:

Smithsonian Institution Traveling Exhibition Service
Record of Activities: April 1995 - April 1996

Jan. 7 - April 7, 1995
Chicago, IL
Field Museum of Natural History
Strength and Diversity: Japanese-American Women, 1885-1990

March 3 - April 30, 1995
Astoria, OR
Clatsop Historical Society
Produce for Victory: Posters on the American Home Front, 1941-1945

March 4 - April 1, 1995
Lewisburg, WV
Carnegie Hall
Produce for Victory: Posters on the American Home Front, 1941-1945

March 4 - April 16, 1995
Paterson, NJ
Paterson Museum
Songs of My People

March 4 - April 30, 1995
Knoxville, TN
Museum of East Tennessee History
Before Freedom Came: African American Life in the Antebellum South

March 11 - April 9, 1995
Choctaw, MS
Choctaw Museum of the Southern Indian
Saynday Was Coming Along: Silverhorn's Drawings of the Kiowa Trickster

March 11 - April 23, 1995
Janesville, WI
Rock County Historical Society
Try This On: A History of Clothing, Gender, and Power

March 13 - April 22, 1995
Effingham, IL
Helen Matthas Public Library
Produce for Victory: Posters on the American Home Front, 1941-1945

March 15 - April 30, 1995
Cordele, GA
Cordele-Crisp Carnegie Library
Produce for Victory: Posters on the American Home Front, 1941-1945

March 16 - May 14, 1995
New York, NY
Bard Graduate Center
English Silver: Masterpieces by Omar Ramsden

March 17 - June 4, 1995
New York, NY
American Museum of Natural History
Spiders!

March 17 - April 30, 1995
Washington, D.C.
Renwick Gallery, Smithsonian Institution
Full Deck Art Quilts

March 18 - April 30, 1995
Fairfield, CT
Center for Financial Studies
Who's in Charge: Workers and Managers in the United States

March 18 - April 30, 1995
Paris, TX
Hayden Museum of American Cart
Before Freedom Came: African American Life in the Antebellum South

March 18 - April 30, 1995
St. Louis, MO
Jefferson National Expansion Memorial
American Greek Revival Architecture

April 1 - April 30, 1995
Tulsa, OK
Tulsa Junior College
Long Road Up the Hill: African Americans in Congress

April 6 - May 29, 1995
Pittsburgh, PA
Carnegie Museum of Natural History
Beyond Category: The Musical Genius of Duke Ellington

April 8 - April 30, 1995
San Jacinto, CA
Mount San Jacinto College
No Laughing Matter: Political Cartoonists on the Environment

April 8 - May 7, 1995
Fort Morgan, CO
Fort Morgan Heritage Foundation
Seeds of Change

April 6 - May 18, 1995
Providence, RI
Providence Public Library
Beyond Category: The Musical Genius of Duke Ellington

April 8 - May 19, 1995
Sutton, WV
Landmark Studio for the Arts
Produce for Victory: Posters on the American Home Front, 1941-1945

April 8 - May 21, 1995
Fairbanks, AK
University of Alaska Museum
The Tongass: Alaska's Magnificent Rain Forest

April 8 - May 28, 1995
Denver, CO
Mizel Museum of Judaica
A Day in the Warsaw Ghetto

April 8 - June 4, 1995
Ft. Lauderdale, FL
Broward County Main Library
Beyond Category: The Musical Genius of Duke Ellington

April 8 - June 18, 1995
Rochester, NY
The Strong Museum
Beyond Category: The Musical Genius of Duke Ellington

April 10 - May 27, 1995
Eau Claire, WI
L.E. Phillips Memorial Library
Family Folklore

April 14 - June 11, 1995
Reno, NV
Nevada Historical Society
Lincoln and His Contemporaries

April 15 - June 25, 1995
Chicago, IL
Terra Museum of American Art
Louis Armstrong: A Cultural Legacy

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April 15 - June 25, 1996
Logan KS
Dane G. Hansen Memorial Museum
Strength and Diversity: Japanese American Women, 1885-1990

April 15 - May 28, 1995
Ann Arbor, MI
Ann Arbor Public Library
Africa's Legacy in Mexico

April 15 - June 4, 1995
St. Leonard, MD
Jefferson Paterson Park and Museum
Climbing Jacob's Ladder: The Rise of Black Churches in Eastern American Cities

April 15 - June 25, 1995
Jacksonville, FL
Museum of Science and History
More than Meets the Eye

April 22 - May 21, 1995
Skokie, IL
Skokie Heritage Museum
Family Folklore

April 22 - May 28, 1995
Raleigh, NC
North Carolina Museum of History
Constance Stuart Larrabee: WWII Photo Journal

May 5 - June 23, 1995
Delta, UT
Great Basin Museum
Produce for Victory: Posters on the American Home Front, 1941-1945

May 6 - June 4, 1995
Huntsville, TX
Sam Houston Memorial Museum
After the Revolution: Everyday Life in America, 1780-1800

May 6 - June 18, 1995
Fort Wayne, IN
Fort Wayne Museum of Art
Songs of My People

May 6 - July 2, 1995
Austin, TX
Laguna Gloria Art Museum
Mexico: A Landscape Revisited

May 13 - June 25, 1995
San Diego, CA
"B" Street Exhibition Hall
VanDerZee, Photographer (1886-1983)

May 13 - June 25, 1995
College Station, TN
Texas A&M Univ., J. Wayne Stark Gallery
Try This On: A History of Clothing, Gender, and Power

May 15 - June 24, 1995
Dixon, IL
Dixon Public Library
Produce for Victory: Posters on the American Home Front, 1941-1945

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May 15 - July 12, 1995
Heppner, OR
Morrow County Museum
Produce for Victory: Posters on the American Home Front, 1941-1945

May 15 - July 15, 1995
Gainesville, GA
Georgia Mountains Historical Museum
Produce for Victory: Posters on the American Home Front, 1941-1945

May 20 - June 18, 1995
Springfield, IL
Bank One of Springfield
Long Road Up the Hill: African Americans in Congress

May 20 - July 2, 1995
Miami, FL
Miami-Dade Public Library System
Produce for Victory: Posters on the American Home Front, 1941-1945

May 20 - July 2, 1995
Fort Collins, CO
Fort Collins Museum
American Greek Revival Architecture

May 20 - July 2, 1995
Youngstown, OH
Ohio Historical Society
Who's in Charge: Workers and Managers in the United States

May 20 - July 2, 1995
Raleigh, NC
Mordecai Historic Park
Before Freedom Came: African-American Life in the Antebellum South

March 3 - May 5, 1996
Blacksburg, VA
Virginia Polytechnic Institute
An Ocean Apart: Contemporary Vietnamese Art from the United States and Vietnam

May 20 - July 4, 1995
Portsmouth, VA
Arts Center of the Portsmouth Museums
Full Deck Art Quilts

May 20 - Sept. 3, 1995
Pittsburgh, PA
Carnegie Museum of Natural History
Fred E. Miller: Photographer of the Crows

May 21 - July 23, 1995
Santa Rosa, CA
Sonoma County Museum
No Laughing Matter: Political Cartoonists on the Environment

May 25 - July 5, 1996
Fairview, UT
Fairview Museum of History and Art
Lincoln and His Contemporaries

May 27 - June 25, 1995
Sheffield, OH
French Creek Nature Center
Seeds of Change

May 27 - July 23, 1995
Syracuse, NY
Erie Canal Museum
Before Freedom Came: African American Life in the Antebellum South

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June 1 - July 13, 1995
St. Johnsbury, VT
St. Johnsbury Athenaeum
Beyond Category: The Musical Genius of Duke Ellington

June 3 - Sept. 24, 1995
Juneau, AK
Alaska State Museum
The Tongass: Alaska's Magnificent Rain Forest

June 8 - July 20, 1995
Wisconsin Rapids, WI
McMillan Memorial Library
Beyond Category: The Musical Genius of Duke Ellington

June 10 - July 9, 1995
Wapakoneta, OH
Auglaize County Courthouse
Family Folklore

June 10 - July 23, 1995
Scranton, PA
Everhart Museum
Major League/Minor League: America's Baseball Stadiums by Jim Dow

June 17 - July 16, 1995
Tallahassee, FL
Tallahassee Museum of History and Natural Science
Family Folklore

June 17 - July 30, 1995
San Antonio, TX
Witte Museum of Science and History
Africa's Legacy in Mexico

June 24 - July 23, 1995
Willsborough, NY
Essex Maritime Festival
After the Revolutions: Everyday Life in America, 1780-1800

June 24 - Aug. 6, 1995
Columbus, OH
King Arts Complex
Climbing Jacob's Ladder: The Rise of Black Churches in Eastern American Cities

June 24 - Aug. 20, 1995
Bryan, TX
Brazos Valley Museum
Two Eagles/Dos Aguilas: A Natural History of the Mexico-U.S. Borderlands

July 1 - Sept. 24, 1995
Bloomfield Hills, MI
Cranbrook Institute of Science
Spiders!

July 7 - Aug. 25, 1995
Castle Dale, UT
Museum of the San Rafael
Produce for Victory: Posters on the American Home Front, 1941-1945

July 8 - Sept. 17, 1995
Memphis, TN
National Civil Rights Museum
Beyond Category: The Musical Genius of Duke Ellington

July 8 - Aug. 6, 1995
Ft. Lauderdale, FL
African American Caribbean Cultural Center
Long Road Up the Hill: African Americans in Congress

July 8 - Oct. 1, 1995
Pittsburgh, PA
Pittsburgh Children's Museum
The Kids Bridge

July 10 - Aug. 27, 1995
San Francisco, CA
San Francisco Jazz Festival
Beyond Category: The Musical Genius of Duke Ellington

July 15 - Aug. 13, 1995
Ocala, FL
Central Florida Community College
Seeds of Change

July 15 - Aug. 27, 1995
Tallahassee, FL
Tallahassee Museum of History and Natural Science
Try This On: A History of Clothing, Gender, and Power

July 15 - Aug. 27, 1995
Lowell, MA
Whistler House and Parker Gallery
VanDerZee, Photographer (1886-1983)

July 21 - Sept. 17, 1995
Tucson, AZ
Tucson Museum of Art
Mexico: A Landscape Revisited

July 22 - Sept. 3, 1995
San Jose, CA
American Museum of Quilts and Textiles
Full Deck Art Quilts

July 22 - Sept. 3, 1995
Elmhurst, IL
Elmhurst Historical Museum
Who's in Charge: Workers and Managers in the United States

July 22 - Sept. 3, 1995
Winchester, VA
Kurtz Cultural Center
Before Freedom Came: African-American Life in the Antebellum South

July 22 - Sept. 3, 1995
New York, NY
Haines, Lundberg & Waehler
American Greek Revival Architecture

July 22 - Oct. 1, 1995
Las Vegas, NV
Barrick Museum of Natural History, Univ. of Nevada at Las Vegas
Strength and Diversity: Japanese American Women, 1885-1990

July 27 - Sept. 7, 1995
Hyattsville, MD
Prince George's County Memorial Library
Beyond Category: The Musical Genius of Duke Ellington

July 27 - Sept. 7, 1995
Minneapolis, MN
Minneapolis Public Library and Information Center
Beyond Category: The Musical Genius of Duke Ellington

July 28 - Sept. 30, 1995
Moro, OR
Sherman County Historical Society
Produce for Victory: Posters on the American Home Front, 1941-1945

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July 29 - Aug. 27, 1995
Nanuet, NY
Nanuet Mall
Family Folklore

July 29 - Oct. 8, 1995
Camden, NJ
Stedman Art Gallery, Rutgers University
Louis Armstrong: A Cultural Legacy

Aug. 5 - Sept. 5, 1995
Streamwood, IL
Streamwood Park District
Family Folklore

Aug. 5 - Sept. 5, 1995
AuTrain, MI
Paulson House Museum
Saynday Was Coming Along: Silverhorn's Drawings of the Kiowa Trickster

Aug. 12 - Sept. 13, 1995
Frederick, MD
Delaplaine Visual Arts Center
After the Revolution: Everyday Life in America, 1780-1800

Aug. 12 - Sept. 24, 1995
Haverhill, MA
Northern Essex Community College
Major League/Minor League: America's Baseball Stadiums by Jim Dow

Aug. 12 - Nov. 26, 1995
Ukiah, CA
Grace Hudson Museum
No Laughing Matter: Political Cartoonists on the Environment

Aug. 19 - Oct. 1, 1995
Roanoke, VA
Harrison Museum of African American Culture
Africa's Legacy in Mexico

Aug. 19 - Oct. 15, 1995
Atlanta, GA
Atlanta History Museum
Before Freedom Came: African American Life in the Antebellum South

Aug. 26 - Sept. 24, 1995
Martin, TN
University of Tennessee at Martin
Long Road Up the Hill: African Americans in Congress

Aug. 26 - Oct. 8, 1995
Atlanta, GA
Atlanta University Center
Climbing Jacob's Ladder: The Rise of Black Churches in Eastern American Cities

Sept. 2 - Oct. 1, 1995
New York, NY
Fraunces Tavern Museum
Seeds of Change

Sept. 5 - Oct. 28, 1995
Arlington, VA
Ellipse Arts Center
An Ocean Apart: Vietnamese Contemporary Art from the United States and Vietnam

Sept. 9 - Oct. 22, 1995
Winston-Salem, NC
Winston-Salem State University
Songs of My People

Sept. 9 - 1995 - Jan. 21, 1996
Dallas, TX
Dallas Museum of Natural History
Two Eagles/Dos Aguilas: A Natural History of the Mexico-U.S. Borderlands

Sept. 9 - 19, 1995
Monterey, CA
Monterey Jazz Festival
Beyond Category: The Musical Genius of Duke Ellington

Sept. - Oct. 15, 1995
Chicago, IL
Chicago Public Library
Lincoln and His Contemporaries

Sept. 16 - Oct. 15, 1995
Livingston, AL
Livingston University
Family Folklore

Sept. 16 - Oct. 29, 1995
Flint, MI
Sloan Museum
Try This On: A History of Clothing, Gender, and Power

Sept. 16 , 1995 - Jan. 2, 1996
Staten Island, NY
Alice Austin House Museum
VanDerZee, Photographer (1886-1983)

Sept. 19-24, 1995
Washington, D.C.
Congressional Black Caucus
Before Freedom Came: African American Life in the Antebellum South

Sept. 21 - Nov. 2, 1995
New Haven, CT
New Haven Free Public Library
Beyond Category: The Musical Genius of Duke Ellington

Sept. 21 - Nov. 2, 1995
Lincoln, NE
University of Nebraska at Lincoln
Beyond Category: The Musical Genius of Duke Ellington

Sept. 23 - Oct. 22, 1995
Sault Ste. Marie, MI
River of History Museum
Saynday Was Coming Along: Silverhorn's Drawings of the Kiowa Trickster

Sept. 23 - Nov. 5, 1995
Tempe, AZ
Arizona State University Art Museum
Full Deck Art Quilts

Sept. 23 - Nov. 5, 1995
Haverhill, MA
Northern Essex Community College
American Greek Revival Architecture

Sept. 29-30, 1995
Preparatory Workshop: Produce for Victory
Participants: Arizona Humanities Council
Arizona State University
Indiana Humanities Council
Indiana State University
Nebraska Humanities Council
University of Nebraska
California Humanities Council
Utah Humanities Council

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Sept. 30 - Oct. 29, 1995
Athens, GA
University of Georgia Museum
Beyond Category: The Musical Genius of Duke Ellington

Sept. 30 - Oct. 29, 1995
Adrian, MI
Adrian College, Shipman Library
After the Revolution: Everyday Life in America, 1780-1800

Sept. 30 - Nov. 12, 1995
Concord, NH
New Hampshire Historical Society
Produce for Victory: Posters on the American Home Front, 1941-1945

Oct. 1 - Nov. 12, 1995
Piney Flats, TN
Rocky Mount Historical Association
Before Freedom Came: African American Life in the Antebellum South

Oct. 7 - Nov. 12, 1995
Cleveland, OH
Cleveland Center for Contemporary Art
Beyond Category: The Musical Genius of Duke Ellington

Oct. 7 - Dec. 3, 1995
Memphis, TN
Memphis Brooks Museum of art
Mexico: A Landscape Revisited

Oct. 10, 1995 - Jan. 3, 1996
Washington, D.C.
International Gallery, S. Dillon Ripley Center, Smithsonian Institution
Voyages and Visions: Nineteenth-Century European Images of the Middle East

Oct. 14 - Nov. 12, 1995
Baltimore, MD
Baltimore City Community College
The Long Road Up the Hill: African Americans in Congress

Oct. 14 - Nov. 26, 1995
Hendersonville, NC
Henderson County Library
Major League/Minor League: America's Baseball Stadiums by Jim Dow

Oct. 21 - Nov. 19, 1995
Laredo, TX
Laredo Children's Museum
Seeds of Change

Oct. 23-24, 1995
Preparatory Workshop: An Ocean Apart
Participants: Ellipse Arts Center, Arlington, VA
James A. Michener Art Museum, Doyelstown, PA
Virginia Polytechnic Institute, Blacksburg, VA
San Jose Museum of Art, San Jose, CA
Robert Hull Fleming Museum, Burlington, VT
Lompoc Museum, Lompoc, CA
Pensacola Museum of Art, Pensacola, CA

Oct. 23, 1995 - Feb. 2, 1996
El Paso, TX
University of Texas at El Paso
Africa's Legacy in Mexico

Oct. 28 - Dec. 10, 1995
San Diego, CA
African American Museum of Fine Arts, Lyceum Theater
Climbing Jacob's Ladder: The Rise of Black Churches in Eastern American Cities

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Oct. 28 - Dec. 10, 1995
Providence, RI
Johnson and Wales University
Climbing Jacob's Ladder: The Rise of Black Churches in Eastern American Cities

Oct. 28, 1995 - Jan. 7, 1996
New Orleans, LA
New Orleans Museum of Art
Louis Armstrong: A Cultural Legacy

Nov. 18, 1995 - Feb. 18, 1996
Doylestown, PA
James A. Michener Art Museum
An Ocean Apart: Contemporary Vietnamese Art from the United States and Vietnam

Oct. 28, 1995 - Jan. 14, 1996
Arvada, CO
Arvada Center for the Arts and Humanities
Strength and Diversity: Japanese American Women, 1885-1990

Oct. 28, 1995 - Jan. 21, 1996
Houston, TX
Children's Museum of Houston
The Kids Bridge

Oct. 28, 1995 - Jan. 7, 1996
Milwaukee, WI
Betty Brinn Children's Museum
More Than Meets the Eye

Nov. 4 - Dec. 17, 1996
Fort Wayne, IN
Lincoln Museum
Lincoln and His Contemporaries

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Nov. 4 - Dec. 3, 1995
Tulsa, OK
Tulsa Junior College
Family Folklore

Nov. 4 - Dec. 17, 1996
Baltimore, MD
Roland park Country School
Fred E. Miller: Photographer of the Crows

Nov. 11 - Dec. 10, 1995
Dayton, OH
Sinclair Community College
Saynday Was Coming Along: Silverhorn's Drawings of the Kiowa Trickster

Nov. 11, 1995 - Jan. 2, 1996
Savannah, GA
King-Tisdell Cottage Foundation, Inc.
Songs of My People

Nov. 16 - Dec. 28, 1995
Wichita, KS
Wichita Public Library
Beyond Category: The Musical Genius of Duke Ellington

Nov. 11, 1995 - Jan. 7, 1996
Wilmington, NC
Cape Fear Museum
Before Freedom Came: African American Life in the Antebellum South

Nov. 18 - Dec. 17, 1995
Sacramento, CA
California State University
After the Revolution: Everyday Life in America, 1780-1800

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Nov. 15, 1995 - Feb. 11, 1996
Washington, D.C.
National Geographic Society Explorers Hall
Earth 2U, Exploring Geography

Nov. 16 - Dec. 28, 1995
Manalapan, NJ
Monmouth County Library
Beyond Category: The Musical Genius of Duke Ellington

Nov. 18 - Dec. 31, 1995
Clarksville, TN
Clarksville-Montgomery County Museum
Try This On: A History of Clothing, Gender, and Power

Nov. 25, 1995 - Jan. 7, 1996
Miami, FL
Miami-Dade Public Library System
Before Freedom Came: African American Life in the Antebellum South

Nov. 25, 1995 - Jan. 7, 1996
Williamsport, PA
Old Jail Center
Full Deck Art Quilts

Nov. 25, 1995 - Jan. 21, 1996
Boston, MA
Boston Public Library
Beyond Category: The Musical Genius of Duke Ellington

Dec. 1, 1995 - Jan. 7, 1996
Ocala, FL
Central Florida Community College
American Greek Revival Architecture

Dec. 2 - Dec. 31, 1995
Durham, NC
St. Joseph's Historical Foundation
The Long Road Up the Hill: African Americans in Congress

Dec. 2, 1995 - Jan. 14, 1996
Lafayette, GA
Cherokee Regional Library
Produce for Victory: Posters on the American Home Front, 1941-1945

Dec. 9, 1995 - March 27, 1996
Chicago, IL
DuSable Museum of African American History
Beyond Category: The Musical Genius of Duke Ellington

Dec. 16, 1995 - Jan. 28, 1996
Harlingen, TX
Rio Grande Valley Museum
No Laughing Matter: Political Cartoonists on the Environment

Dec. 16, 1995 - March 31, 1996
Los Angeles, CA
Natural History Museum of Los Angeles
The Tongass: Alaska's Magnificent Rain Forest

Dec. 30, 1995 - Feb. 11, 1996
Bangor, ME
Bangor Theological Seminary
Climbing Jacob's Ladder: The Rise of Black Churches in Eastern American Cities

Jan. 4-5, 1996
Preparatory Workshop: Produce for Victory
Participants: Lompoc Museum, Lompoc, CA
Corona Public Library, Corona, CA
Tulac History Museum, Tulac, CA
Mary Aaron Museum, Marysville, CA
California Humanities Council

Jan. 5, 1996 - March 31, 1996
Lompoc, CA
Lompoc Museum
Produce for Victory: Posters on the American Home Front, 1941-1945

Jan. 6 - Feb. 4, 1996
Milledgeville, GA
Allied Arts, John Marlor Arts Center
After the Revolutions: Everyday Life in America, 1780-1800

Jan. 11 - Feb. 22, 1996
Xenia, OH
Greene County Public Library
Beyond Category: The Musical Genius of Duke Ellington

Jan. 11 - Feb. 22, 1996
San Antonio, TX
San Antonio Public Library
Beyond Category: The Musical Genius of Duke Ellington

Jan. 14 - April 30, 1995
Hartford, CT
Connecticut Historical Society
Produce for Victory: Posters on the American Home Front, 1941-1945

Jan. 15 - March 10, 1996
Washington, D.C.
National Museum of American History, Smithsonian Institution
Who's in Charge: Workers and Managers in the United States

Jan.. 19 - March 3, 1996
Williamsburg, VA
Muscarelle Museum of Art, College of William and Mary
Voyages and Visions: Nineteenth-Century European Images of the Middle East

Jan. 20 - Feb. 18, 1996
Greensboro, NC
Mattye Reed African Heritage Center
The Long Road Up the Hill: African Americans in Congress

Jan. 20 - March 3, 1996
Baton Rouge, LA
Louisiana Arts and Science Center
VanDerZee, Photographer (1886-1983)

Jan. 20 - May 5, 1996
Madison, WI
State Historical Museum
Try This On: A History of Clothing, Gender, and Power

Jan. 27 - March 10, 1996
Medford, MA
Tufts University Art Gallery
Songs of My People

Jan. 27 - March 10, 1996
Raleigh, NC
Historic Oakview County Park
American Greek Revival Architecture

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Jan. 27 - March 10, 1996
Clarksville, TN
Austin Peay State University
Before Freedom Came: African American Life in the Antebellum South

Jan. 27 - March 10, 1996
Abingdon, VA
William King Regional Art Center
Full Deck Art Quilts

Jan. 27 - March 24, 1996
Frostburg, MD
Frostburg State University
Whispered Silences: Japanese American Detention Camps, Fifty Years Later

Jan. 27 - April 7, 1996
Rochester, NY
Strong Museum
Louis Armstrong: A Cultural Legacy

Jan. 27 - Nov. 17, 1996
Bozeman, MT
Museum of the Rockies
Fred E. Miller: Photographer of the Crows

Statewide circulation of **Earth 2U, Exploring Geography** "Discovery Trunk" to elementary school teachers throughout California begins in February, 1996

District-wide circulation of **Earth 2U, Exploring Geography** "Discovery Trunk" to elementary school teachers begins in February 1996

Feb. 1 - May 3, 1996
Payson, AZ
Northern Gila County Historical Society
Produce for Victory: Posters on the American Home Front, 1941-1945

Feb. 2-10, 1996
Preparatory Workshop: Earth 2U, Exploring Geography
Participants: Cumberland Science Museum, Nashville, TN
Frank H. McClung Museum, Knoxville, TN
Dane G. Hansen Memorial Museum, Logan, KS
Fullerton Museum, Fullerton, CA
Barnum Museum, Bridgeport, CT
Museum of Science and Industry, Chicago, IL
Discovery Center Museum, Rockford, IL

Feb. 3 - March 17, 1996
Opelika, AL
Museum of East Alabama
Produce for Victory: Posters on the American Home Front, 1941-1945

Feb. 3 - March 31, 1996
Greensboro, NC
Greensboro Historical Museum
Before Freedom Came: African American Life in the Antebellum South

Feb. 10 - April 7, 1996
Charlotte, NC
Public Library of Charlotte and Mecklenburg Counties
Beyond Category: The Musical Genius of Duke Ellington

Feb. 10 - April 7, 1996
Lubbock, TX
Museum of Texas Tech University
Two Eagles/Dos Aguilas: A Natural History of the Mexico-U.S. Borderlands

Feb. 10 - May 5, 1996
Philadelphia, PA
Academy of Natural Sciences
Spiders!

Feb. 17 - March 31, 1996
Lansing, MI
Lansing Mall
Major League/Minor League: America's Baseball Stadiums by Jim Dow

Feb. 17 - May 12, 1996
Memphis, TN
National Civil Rights Museum
The Kids Bridge

Feb. 24 - March 24, 1996
Greensboro, NC
Tannenbaum Park
After the Revolution: Everyday Life in America, 1780-1800

Feb. 24 - April 7, 1996
Montezuma, KS
Stauth Memorial Museum
The Prairie Schoolhouse

Feb. 25 - April 23, 1995
Worcester, MA
Worcester Art Museum
Mexico: A Landscape Revisited

Feb. 25-26, 1996
Preparatory Workshop: Produce for Victory
Participants: Warwick County Museum, Boonville, IN
Stevens Memorial Museum, Salem, IN
Marshall County Historical Society, Plymouth, IN
Indiana Humanities Council

Statewide circulation of **Earth 2U, Exploring Geography** "Discovery Trunk" to elementary school teachers throughout Colorado begins in March, 1996

Statewide circulation of **Earth 2U, Exploring Geography** "Discovery Trunk" to elementary school teachers throughout Connecticut begins in March, 1996

Statewide circulation of **Earth 2U, Exploring Geography** "Discovery Trunk" to elementary school teachers throughout Indiana begins in March, 1996

Statewide circulation of **Earth 2U, Exploring Geography** "Discovery Trunk" to elementary school teachers throughout Maryland begins in March, 1996

Statewide circulation of **Earth 2U, Exploring Geography** "Discovery Trunk" to elementary school teachers throughout Tennessee begins in March, 1996

March 1 - May 1, 1996
Boonville, IN
Warrick County Museum
Produce for Victory: Posters on the American Home Front

March 2 - May 5, 1996
Wilmington, DE
Historical Society of Delaware
Climbing Jacob's Ladder: The Rise of Black Churches in Eastern American Cities

March 3 - April 21, 1995
Vernal, UT
Uintah County Library
Produce for Victory: Posters on the American Home Front, 1941-1945

March 3 - May 25, 1996
Fort Wayne, IN
Lincoln Museum
American Greek Revival Architecture

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March 15 - June 23, 1996
Los Angeles, CA
California Afro-American Museum
Before Freedom Came: African American Life in the Antebellum South

March 7 - April 18, 1996
Champaign, IL
Champaign Public Library
Beyond Category: The Musical Genius of Duke Ellington

March 7 - April 18, 1996
Glendale, AZ
Glendale Public Library
Beyond Category: The Musical Genius of Duke Ellington

March 9 - April 7, 1996
Westminster, MD
Western Maryland College
The Long Road Up the Hill: African Americans in Congress

March 9 - June 2, 1996
Nashville, TN
Cumberland Museum and Science Center
Earth 2U, Exploring Geography

March 10, 1996 - May 12, 1996
Birmingham, AL
Birmingham Civil Rights Institute
Songs of My People

March 11 - Aug. 26, 1996
Bisbee, AZ
Bisbee Mining & Historical Museum
Produce for Victory: Posters on the American Home Front, 1941-1945

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March 14 - May 5, 1996
Taft, CA
Taft College
Saynday Was Coming Along: Silverhorn's Drawings of the Kiowa Trickster

March 20 - May 12, 1996
Ocala, FL
Central Florida Community College
Full Deck Art Quilts

March 20 - June 16, 1996
Lompoc, CA
Lompoc Museum
The Prairie Schoolhouse

March 20 - Aug. 18, 1996
San Jose, CA
San Jose Museum of Art
An Ocean Apart: Contemporary Vietnamese Art from the United States and Vietnam

March 21-24, 1996
Washington, D.C.
Union Station
Art in Celebration!
Presented on board Artrain, America's Museum on the Rails

March 22 - May 10, 1996
Layton, UT
Heritage Museum of Layton
Lincoln and His Contemporaries

March 25 - Sept. 9, 1996
Bridgeport, CT
Barnum Museum
Try This On: A History of Clothing, Gender, and Power

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March 23 - May 5, 1996
Boston, MA
Museum of Afro-American History
VanDerZee, Photographer (1886-1983)

March 27 - June 9, 1996
Lompoc, CA
Lompoc Museum
The Prairie Schoolhouse

March 30 - April 3, 1996
Chambersburg, PA
Chambersburg Train Depot
Art in Celebration!
Presented on board Artrain, America's Museum on the Rails

March 30 - May 12, 1996
St. Louis, MO
Vaughn Cultural Center/Urban League
Before Freedom Came: African American Life in the Antebellum South

March 30 - May 25, 1996
Vincennes, IN
Indiana Military Museum, Inc.
Produce for Victory: Posters on the American Home Front, 1941-1945

March 30 - May 26, 1996
Knoxville, TN
University of Tennessee, Frank H. McClung Museum
Earth 2U, Exploring Geography

Statewide circulation of **Earth 2U, Exploring Geography** "Discovery Trunk" to elementary school teachers throughout Georgia begins in April, 1996

Statewide circulation of **Earth 2U, Exploring Geography** "Discovery Trunk" to elementary school teachers throughout Illinois begins in April 1996

Statewide circulation of **Earth 2U, Exploring Geography** "Discovery Trunk" to elementary school teachers throughout Kansas begins in April, 1996

Statewide circulation of **Earth 2U, Exploring Geography** "Discovery Trunk" to elementary school teachers throughout Massachusetts begins in April 1996

April 2 - June 13, 1996
Greenfield, IN
Greenfield Public Library
Beyond Category: The Musical Genius of Duke Ellington

April 4 - June 16, 1996
New Orleans, LA
Perseverance Hall
Beyond Category: The Musical Genius of Duke Ellington

April 4 - June 16, 1996
Cincinnati, OH
Arts Consortium of Cincinnati
Climbing Jacob's Ladder: The Rise of Black Churches in Eastern American Cities

April 6 - May 19, 1996
Duluth, MN
Lake Superior Museum of Transportation
Produce for Victory: Posters on the American Home Front, 1941-1945

April 8 - May 21, 1995
Naples, FL
Philharmonic Center for the Arts
Major League/Minor League: America's Baseball Stadiums by Jim Dow

April 11-14, 1996
Norfolk, VA
Norfolk Train Depot
Art in Celebration!
Presented on board Artrain, America's Museum on the Rails

April 11 - July 21, 1996
San Antonio, TX
Witte Museum of Science and History
More Than Meets the Eye

April 12 - June 15, 1996
Savannah, GA
Telfair Academy of Arts and Science
Louis Armstrong: A Cultural Legacy

April 13 - May 5, 1996
Thibodaux, LA
Wetlands Acadian Cultural Center
After the Revolution: Everyday Life in America, 1780-1800

April 13 - June 9, 1996
Farmington, NH
Farmington Museum
Whispered Silences: Japanese American Detention Camps, Fifty years Later

April 18-21, 1996
Edenton, NC
Edenton Train Depot
Art in Celebration!
Presented on board Artrain, America's Museum on the Rails

April 20 - Aug. 4, 1996
Greensboro, NC
Greensboro Historical Museum
Major League/Minor League: America's Baseball Stadiums by Jim Dow

April 20 - May 28, 1995
Satanta, KS
Dudley Township Public Library
Saynday Was Coming Along: Silverhorn's Drawings of the Kiowa Trickster

April 20 - June 2, 1996
Lawrence, KS
Natural History Museum, Univ. of Kansas
The Tongass: Alaska's Magnificent Rain Forest

April 20 - June 23, 1996
Flint, MI
Mott Community College Library
Beyond Category: The Musical Genius of Duke Ellington

April 25-26, 1996
Preparatory Workshop: Produce for Victory
Participants: Filmore County Historical Society, Filmore, NE
Nemaha Valley Museum, Auburn, NE
Meridian Museum, Cozad, NE
Banner County History Society, Harrisburg, NE
Nebraska Humanities Council

April 25 - Sept. 8, 1996
Wilberforce, OH
National Afro-American Museum and Cultural Center
Van DerZee, Photographer (1886-1983)

April 27 - June 23, 1996
El Paso, TX
University of Texas at El Paso
Two Eagles/Dos Aguilas: A Natural History of the Mexico-U.S. Borderlands

FY 1995 Buyouts

Question 39: Last year 229 individuals took advantage of the buy out opportunity. Of that number, 206 were Federal positions and 23 were trust fund employees. Have these positions been eliminated or has the Smithsonian refilled those positions?

Answer: Essentially all of those positions have been eliminated. However, because the incentive program was truly voluntary, several units were severely depleted and unable to execute basic tasks. Several have since been reorganized and become parts of other entities, and in five instances "backfill" of positions was approved.

Report of the Commission on the Future of the Smithsonian Institution

Question 40: I read with interest the report of the Commission on the Future of the Smithsonian Institution "E Pluribus Unum: This Divine Paradox." I was particularly interested in the report's conclusion that the Smithsonian will not be able to "do everything we all want to do" and "that it must choose between established, even cherished, activities and new programs." I am curious about your response to that conclusion and how specifically you are prepared to made those choices?

Answer: The conclusion of the report of the Committee on the Future of the Smithsonian Institution reflects the reality, not only of the funding environment, now and into the foreseeable future, but also of the capacity to guide with excellence and responsibility a large Institution with competing demands and disparate interests.

The Smithsonian is a smaller entity in terms of staff than it was two years ago, differently organized in order to make the most effective use of that staff and of decreased levels of Federal operational funding, while also venturing into new areas, such as those reflected by growing electronic outreach and activities surrounding the Institution's 150th anniversary. The Institution is seeking to streamline and stabilize its operational base and facilities infrastructure in order to assure far into the future a lively range of imaginative public programming that will attract and be supported by non-Federal resources.

Through internal processes of planning and evaluation, various activities are likely to be reorganized, streamlined, and even eliminated, while others, such as the National Museum of the American Indian and the Extension of the National Air and Space Museum come into being in fulfillment of statutory obligations and Institutional commitments with respect to the collections embraced by those units.

Collections Management

Question 41: The report recommends a master plan for maintenance of the collections and also recommends long-term or permanent loans to partner institutions. Have you prepared such a master plan and what is your response to the recommendation concerning increased loans?

Answer: Since 1980 the Smithsonian has had in place a collections management policy that stresses requirements for access to and accountability for the collections with which it has been entrusted. The policy was revised in 1992 to emphasize internal controls, the creation of collecting plans, and the management of collections information.

Each Smithsonian unit that collects has an on-going program of evaluating the condition and maintenance of its collections. These programs and the collections management policy under which they have been established are being examined from several perspectives. The Smithsonian Council, a group of external museum professionals and academicians that meets annually, is chief among those currently exploring the range of issues that affect Smithsonian collections. Its meeting this fall, as well as the results of other examinations, are expected to lead to adjustments, if not full-scale rearticulation, of the Smithsonian's overall collections management policy and implementation of programs under it.

Because of Institutional responsibilities for collections, many of which have restrictions with respect to their use, permanent loans or transfers are relatively rare. However, long-term loans that hold out the prospect of renewal if appropriate conditions are met are relatively common. The idea of increasing loans of any kind is certainly welcome because it would mean that the knowledge inherent in objects loaned can be developed and shared. It must be borne in mind, however, that in order to loan objects, organizations that will use them wisely and treat them well must be interested in receiving them.

Question 42: Does the Smithsonian currently have any of its collection on long-term or permanent loan and if so what success have you had with this? Is this an effective means of broadening the Smithsonian outreach? Would this also alleviate what you have identified as the most critical collections management issue, i.e. inadequate storage for the collections?

Answer: Lending objects and specimens for exhibition, research, and study is an integral part of the Smithsonian's mission to make museum collections accessible to the widest possible audience, from scholar to school child. Currently the Smithsonian has numerous collections or collection items on long-term loan for educational and scientific purposes. However, the Institution does not use the term "permanent" in describing long-term loans. According to policy and practice, the Smithsonian does not contract permanent loans. The term "permanent" loan is a misnomer because "permanent" possession can not be given to a museum by virtue of a "loan" agreement. All loans, including long-term loans, are temporary arrangements governed by a loan agreement that stipulates the purpose, length of the loan period with renewal options, and the specific loan conditions.

The National Museum of Natural History (NMNH) has several biological collections on long-term loan to other institutions employing researchers who are actively studying these groups. As examples, the Museum's Ixodida (tick) collections are on long-term loan to the

Institute of Arthropodology and Parasitology at Georgia Southern University in Statesboro, the Bombyliidae (bee flies) collection is on loan to the Bishop Museum, Honolulu, and the Museum's fungus collection is located at the Agricultural Research Service in Beltsville, Maryland. Such loans are a good way to ensure effective research use of these particular collections containing taxonomic groups not currently covered by NMNH staff's research interests. In addition, under a memorandum of agreement with the Anchorage Museum of History and Art, the Natural History Museum is planning the long-term loan of ethnographic materials collected on Kodiak Island in 1880. In this case, the Institution is pleased to be able to broaden Smithsonian outreach by having the material studied and displayed in the region in which the collection originated.

The National Air and Space Museum (NASM) has long-term agreements with various federal agencies that are also primary sources of collection acquisitions. For example, the Saturn V launch vehicle situated at NASA's Kennedy Space Center and the Folke-Wulf FW-190 German fighter plane and Loening Amphibian located at the US Air Force Museum at Wright-Patterson Airbase in Ohio are on long-term loan. In the first instance, NASA is willing to undertake a costly restoration and provide the necessary building to house the Saturn V. On account of its size, the Saturn V will remain in Florida indefinitely as the means of moving such an object is prohibitive in terms of cost or having the availability of the equipment required to handle such an artifact. Some long-term borrowers, such as the Kansas Cosmosphere and Space Center and US Rocket and Space Center in Alabama, offer NASM a means of providing object care that the museum may be unable to support. Such loans also enable the public in particular regions of the country to see historically important objects that are not readily available elsewhere.

While an effective means of outreach, most long-term loans have not been initiated for the primary purpose of alleviating inadequate collections storage. The number of long-term loans will always remain small relative to our overall collection size, thereby providing little relief relative to space needs. In addition, although on long-term loan, museums still have a fiduciary responsibility for oversight of these collections which may entail additional costs and resources. Loans require review, monitoring, record-keeping, on-site inspection, and conservation by Smithsonian staff. A borrowing institution may wish to terminate and return a loan to the Institution at any time during the loan period. Within the framework of conditions stipulated by the loan agreement, the Smithsonian needs to be prepared to accept or retrieve the loan. If adequate storage were not available, the Smithsonian would have to cover the borrowing organization's expenses for continued storage and maintenance until storage could be arranged by the Institution. In the meantime, the Smithsonian continues to actively pursue the sharing of collections by loan as part of the Institution's outreach efforts.

Question 43: I was intrigued by the proposed partnerships with institutions outside Washington. The report concludes that the Smithsonian's resources could be shared with a larger number of citizens if the Institution forms partnerships with selected institutions. What if anything has been done to implement this recommendation? What funding would be needed to implement this partnership recommendation and what savings could be realized in terms of reduced storage needs, etc.?

Answer: Institutional partnerships are a significant way of sharing Smithsonian resources more widely. One example is the Extension of the National Air and Space Museum, which, while not very far outside of Washington, is a partnership between the Smithsonian, the Federal Government, the Commonwealth of Virginia, and the private sector that will enable the Institution to restore and display objects of air and space in a manner that would not otherwise be possible. With the Federal investment of $8 million in planning funds, an incomparable collection is assured of long-term preservation, the public is assured of greater accessibility to it, and Federal accounts are assured of savings by avoiding additional maintenance and reconstruction costs at the Garber Facility in Maryland.

The Smithsonian also has a long history of partnerships in the form of traveling exhibitions, the loan of objects and specimens, and of providing expertise by making staff available to other organizations to address specific problems or, for example, developing particular educational resources.

The Institution's Board of Regents is reviewing the concept of affiliations, or partnerships, with other institutions, and from time to time receives proposals along such lines. A recommendation in this regard is expected in the fall. It would seem that partnerships are likely to be developed on a case-by-case basis within broad guidelines, yet to be established, that must of necessity take into account the needs and interests of the Smithsonian, as well as those of the partner organization. Only with a specific proposal in hand can implementation costs be determined and savings estimated.

Repair and Restoration of Buildings

Question 44: The report also recommends that attention and resources be devoted to the rehabilitation and maintenance of existing facilities versus new construction. It recommends $50 million a year for 10 years. Your budget includes $38 million which is a $4 million increase for this purpose. Does this merely delay completing the task or does it put some of the facilities and the collections at risk?

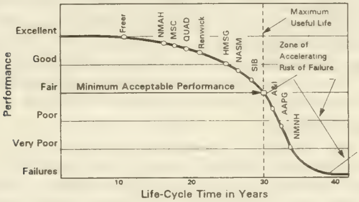
Answer: Several of the Institutions' facilities, and the collections housed in them, are already at risk. The Natural History Museum and the American Art and Portrait Gallery, in particular, are both now in poor condition. The Arts and Industries and Smithsonian "Castle" are nearing that state. Until the Institution can replace the major building systems in those buildings, the risk of system failure will remain. Even a partial system failure could result in closing a portion of a building or damage to collections in that building. Funding at the $38 million level will allow the Institution to achieve some progress in replacing the systems, but most of the annual resources will be spent to repair components that actually break.

Question 45: Your budget justification (pg.82) shows a chart projecting the condition of the Smithsonian facilities in the year 2001 if $50 million is provided annually for repair and rehab. What would that chart look like at the FY 1996 conference level of $33 million? What would the chart look like at the requested level of $38 million. How many buildings would fall below the minimally acceptable performance at these levels?

Answer: The charts below illustrate projected facility conditions in the year 2001 if R&R funding were to remain at the FY 1996 conference level of $33.9 million, and also at the FY 1997 requested level of $38 million, for the next five years. In both cases, at least three buildings (Natural History, American Art and Portrait Gallery, and Arts and Industries) would be below minimally acceptable performance in the year 2001.

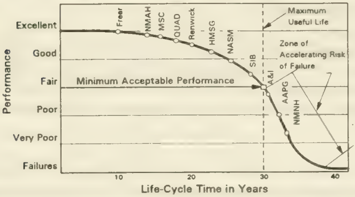
$34 Million FY 1996 Conference Level

Projected Facilities Conditions



$38 Million FY 1997 Request

Projected Facilities Conditions FY 2001



Controlling Growth of Collections

Question 46: What is your policy with respect to controlling the growth of your collections?

Answer: The Institution's and museums' collections management policies set criteria and authority for collections acquisition and deaccession activities that control growth of the collections.

The Smithsonian acquires items only after careful consideration by museum curators, collections managers, directors, and in some cases the Secretary. Because of rigorous selection processes, the Institution adds to the collections only a small percentage of what is offered.

For example, at the National Museum of Natural History, where the vast majority of our collections reside, each departmental Collections Advisory Committee rules on proposed acquisitions unless higher levels of approval are required by policy. Collections are considered for acquisition on the basis of various criteria that include: quality; rarity; intellectual value; cultural diversity; attribution or provenance; size, volume, or quantity of the collections; price; cost of conservation, storage, and maintenance; restrictions of use; and potential for use in exhibitions and research. When an important collection cannot be accommodated, staff may assist potential donors in locating other repositories that can effectively use the collection for educational and scientific purposes.

Collections growth is also controlled through prudent deaccessioning of items, or disposing of items prior to formal accessioning. The National Museum of Natural History routinely culls field collections prior to accessioning. Methods of disposal include exchange, donation, transfer, and destruction. Through these methods, the Natural History Museum in recent years has been able to slow the rate of new acquisitions. During the first half of the 1980's, the Museum acquired collections at an average rate of over one million items per year. In comparison, during the first half of this decade, the average rate has dropped to approximately 400,000 items per year. For 1995, the Museum acquired 202,000 specimens and deaccessioned 278,816 specimens.

In the near future the Institution's collections management policy will undergo a complete review. During its course, the acquisition and deaccession of collections will be reexamined in the context of the centrality of collections to the Institutional mission and of the costs of their care and storage, which will include an assessment of facility requirements.

Question 47: The Commission's report admits that while some of the Institution's collections were created "systematically" others were gathered "in a less organized fashion." Given that maybe not all of the Smithsonian's collections are equal, has any thought been given to reviewing the collections with a possible eye toward deaccessioning?

Answer: Collecting is a combination of intelligent selection and thoughtful pruning. The Institution regularly makes decisions to reject a proposed acquisition or to deaccession items already in the collections. Deaccessioning, however, cannot be undertaken indiscriminately and, if viewed as such, can become a matter of great public concern.

Deaccessioning is viewed quite differently by each of the Institution's disciplines. For instance, a third example of an object in one museum may be viewed as redundant and therefore a candidate for deaccessioning, whereas one hundred examples of a specimen may be viewed as inadequate for study, analysis, or for serving as scientific vouchers in another. A large portion of the National Collections are these scientific and historical vouchers, as the Smithsonian, by statute, is the official repository for collections resulting from government-sponsored investigations. Voucher collections serve as essential documentation for important scientific conclusions or the documentation of important historical events. As such they are frequently checked and rechecked by scholars and others who have reasons to verify or challenge published information. In addition, rapid technological change continues to make our collections valuable in ways no one in the past could have anticipated. Could one predict that museum collections would be a valuable source of DNA for characterizing threatened or endangered species? These are just two examples of issues that emphasize the need for thoughtful consideration of any proposed deaccession. Museums cannot collect everything, but any museum contemplating a deaccession must bear in mind that museums exist to serve the public now and into the future.

That said, the Institution intends to review its collections management policy, at which time acquisitions and deaccessioning will be examined. In addition, the Smithsonian Council will be examining collections across the Institution as their topic of review in the fall of 1996. At that time the Institution's senior management will examine with the Council questions of collections growth and maximizing the use of collections through collaborations and loans.

Funding Restrictions

Question 48: The report also concludes that an enormous boost to research at the Smithsonian would be provided if scholars were freed from current restrictions and permitted to compete with their peers at universities and other institutions for funding from federal agencies such as the National Science Foundation. What restrictions are these and would this require legislative relief to implement this recommendation.

Answer: Current restrictions prevent Smithsonian scholars from competing with their peers at universities and other research institutions for funding from several Federal agencies. For example, the National Science Foundation currently prohibits the Smithsonian from competing for the full range of funding available by its classification of the Institution as a Federally-Funded Research and Development Center (FFRDC) in NSF Circular No. 108. The National Science Foundation has express statutory authority to fund research performed by Federal agencies and other organizations, but limits FFRDC eligibility. FFRDC's are eligible for NSF support only if a proposed project meets one of four exceptions defined in Circular

No. 108. The Smithsonian has repeatedly requested that the National Science Foundation remove its restrictions on applications from Smithsonian scholars.

Second, beginning in FY 1977, the Department of the Interior and Related Agencies Appropriations Act has prohibited agencies and organizations, such as the Smithsonian, that are funded in that Act from making grants to or receiving grants from entities funded in the same Act. Thus, the National Endowment for the Arts, the National Endowment for the Humanities, and the Institute of Museum Services cannot make grants to the Smithsonian. This prohibition has eliminated an important source of funding for Smithsonian scholars and researchers who may be uniquely qualified to assist these organizations with projects that respond to their mission.

Research funding for Smithsonian scholars would increase if restrictive language in National Science Foundation Circular No. 108 and in the Interior Appropriations Act were eliminated. Smithsonian researchers and scholars are eager to compete with their peers at universities and research institutions for the full range of funding support available. The Smithsonian would welcome any relief that this Committee could provide.

Smithsonian Institution Traveling Exhibition Service

Question 49: The report suggested that an expansion of the SITES program is a way to increase the reach of the Institution and one which is supported by fees. Have you given any consideration to this idea and does the SITES program generate fees sufficient to cover the cost of the program?

Answer: The potential value of expanding the SITES program as a means of increasing the Smithsonian's presence in cities and towns across the nation is being explored in greater and greater detail, as the Institution's 150th anniversary show--*America's Smithsonian*--generates ever-growing public enthusiasm for traveling exhibitions from the National Mall.

SITES exhibitions already reach millions of Smithsonian visitors beyond Washington every year. Museums, libraries, historical societies, university galleries, science centers, zoos, aquariums, botanical gardens and train depots are among the many host facilities nationwide where people can experience the richness of Smithsonian research initiatives and collections. Notwithstanding this strong national presence, however, it barely scratches the surface of public demand for opportunities to feature the Smithsonian holdings in communities large and small. The *America's Smithsonian* exhibit has deepened beyond measure the public's relationship to the Smithsonian, and interest in the Institution as a national treasure that belongs to the people has never been stronger.

Many SITES exhibitions are fee-supported. Many others, however, depend upon outside philanthropic support to defray the cost of rental fees and shipping expenses that museums and other facilities pay in order to host Smithsonian traveling exhibitions. Private sector sponsorship is critical to SITES, because the organization's appropriation ($2.4 million) and trust allotment ($409,000) cover mostly staff salaries and benefits, rather than exhibit design, production and shipping, which together comprise the largest cost factors associated with traveling exhibitions.

The consideration of whether or not to expand the SITES program in order to meet public demand therefore involves a financial decision. Fee-supported exhibitions can answer the needs of small-scale shows. For larger presentations, however, and especially for exhibits that include significant numbers of original Smithsonian objects, rental fees alone will not cover the growing costs of insurance, production and transportation. These expenses will only be covered through an additional infusion of funds, whether from private philanthropy or appropriations.

Downsizing

Question 50: The report several times references the need to made the tough choices and that existing programs will have to be eliminated or downsized to undertake new higher priorities. As I look at your budget I do not notice any downsizing. In fact your budget proposes some significant increases including 13 new positions for priority program enhancements. How is this consistent with making the tough choices and has the Institution begun any review of the existing activities with any eye toward eliminating existing programs in order to fund higher priority initiatives? For the record please provide a listing of any program eliminations or downsizing that has been accomplished or that is proposed in FY 1997.

Answer: As stated in response to question 40, the Smithsonian is a smaller entity than it was two years ago, differently organized in order to make the most effective use of staff and of decreased levels of Federal funds, while also venturing into new areas, such as those reflected by growing electronic outreach and activities surrounding the Institution's 150th anniversary.

As an example, Secretary Heyman began his administration by reorganizing the Institution's central administration into two major groups: operations, which are within the purview of the Under Secretary, and programs. The reorganization collapsed the offices of three assistant secretaries into a small, cohesive administrative unit under a single Provost. Reassignment or retirement of the principals, their deputies, and much of their support staff, allowed redirection of resources to areas of greatest need in the program units. The office of a fourth assistant secretary was eliminated altogether. This approach to reorganization through consolidation, elimination, and delayering levels of management is serving as a model for Smithsonian museums, research institutes, and offices as they undertake their own reorganization efforts.

The overall Institutional strategy is to streamline and stabilize the operational base and facilities infrastructure in order to assure far into the future a lively range of imaginative public programming that will attract and be supported by non-Federal resources. Through internal processes of planning and evaluation, various activities are likely to be reorganized, streamlined, and even eliminated, while others, such as the National Museum of the American Indian and the Extension of the National Air and Space Museum come into being in fulfillment of statutory obligations and Institutional commitments with respect to the collections embraced by those units.

The processes described above are on-going ones. It has not yet been determined how further streamlining will affect Institutional programs in Fiscal Year 1997, but the Voluntary Separation Incentive Program, if nothing else--and the evaluation process will produce other options--is virtually certain to require alternative management and organization strategies in order to fulfill necessary tasks and address new priorities.

QUESTIONS SUBMITTED BY REPRESENTATIVE DAVID E. SKAGGS

Review of Smithsonian Research Activities

Question 51: At last year's hearing, there was a discussion of the extent to which the Smithsonian's basic research activities were coordinated or integrated with research activities carried out or supported by other entities, such as the National Science Foundation, or were subject to periodic peer-review or similar evaluation. At that time, witnesses for the Smithsonian indicated that consideration was being given to establishing a program of regular overall review of the Institution's research activities. Have there been further developments regarding establishment of such a review program? Have there been further steps toward coordination of Smithsonian basic research activities with research work being done by other entities?

Answer: The new Provost, Dennis O'Connor, has stated from the beginning of his tenure that he is committed to instituting regular, systematic review of the program units. The first months he has devoted to in-depth visits to each of the program units, in order to understand the program activities, and to evaluate for himself the best approach for the Institution to take with regard to review. As stated in last year's testimony, there has not been an overall review of research at the Institution by an outside panel nor a unit by unit systematic approach to reviews. Instead, over the years Assistant Secretaries undertook program reviews of various individual units, particularly in the sciences. In fact, most of our science units have undergone outside peer review within the past five years. What the Provost intends to do before the end of the fiscal year is to formulate a systematic approach to review programs across the Institution, with a timetable and process established for each of the units. Because of the highly diverse nature of the various program units, that process and timetable may vary from unit to unit, but the plan for each, and hence for the whole, should be in place. Such reviews will look at all of our activities, of the scholarly research and the exhibitions and education, for each of our museums and research institutes.

Regarding coordination of our research activities with those of other entities, our scientists are continually in contact with their colleagues and peers both in government and university research enterprises. Their work is primarily one of collaboration, not competition arising from direct overlap. We continue our participation in several interagency committees in research and education, and our researchers work collaboratively with researchers in many government agencies, including some who work within our own Natural History Building, such as scientists from the U.S. Department of Agriculture and the National Marine Fisheries Service. In general, our science does not compete, but is complementary to that of other Federal agencies, since we have unique emphasis, such as in systematic biology at the National Museum of Natural History. In the field of astrophysics, again our work is highly complementary, and coordination occurs, for example, through NASA from which much of our outside grant and contract funding is received.

QUESTIONS SUBMITTED BY REPRESENTATIVE SIDNEY R. YATES

FY 1996 Budget

Question 52: How has the Smithsonian been impacted by the cuts in your FY 1996 appropriation? Have you had to furlough or RIF any employees?

Answer: All Smithsonian units have been impacted by not being funded for mandatory increases in the FY 1996 appropriation. Most have been able to absorb these costs ($10.6 million) through delays or cancellations in purchasing goods and services or in filling positions. In some cases, units do not have the flexibility to absorb these costs and furloughs and RIFs are being considered. With the provision in the FY 1996 appropriation for buyout authority, however, the threat of an Institution-wide furlough has diminished.

There have been some serious impacts of the cuts in the FY 1996 appropriation. The most distressing Institution-wide impacts include:

- Reductions in programs within Museums and Research Institutes
- A slowing of exhibition production schedules, public programs, and collections maintenance
- Delays in implementing electronic/computer improvements which support public access
- Withholding discretionary pay raises and deserved awards
- Curtailment of employee training
- Diminished protection services and increased security risks

Question 53: Have the budget cuts put any of your 140,000,000 specimens at risk?

Answer: The compaction of storage remains a severe problem, particularly at the National Museum of Natural History. However, with the continuing move of specimens and objects to the Museum Support Center and the availability of space in the East Court, this will be somewhat alleviated. Reductions continue to inhibit the Institution's ability to hire and train museum technicians to handle general care and maintenance of collections, but it is hoped that the review of collections management policy and programs will suggest new approaches to doing so and that advanced computer programs also will assist.

The increase in the Repair and Restoration account is very important to the preservation of objects and specimens because the first line of defense in their care and conservation is the safety and security of the environment in which they are housed.

Question 54: How will the Institution be impacted if efforts to pass the Omnibus appropriations bill fail and the Smithsonian is funded under a continuing resolution for the rest of the fiscal year?

Answer: Had the Omnibus Appropriations Act not been approved, the Institution would, at a minimum, have had to furlough personnel for at least two days. It is likely that reductions-in-force also might have been initiated, but the availability of authority in the Act for a Voluntary Separation Incentive Program seems likely to forestall that action.

FY 1997 Budget at FY 1996 Level

Question 55: You have requested an increase of $10,600,000 over the amount provided in the FY 1996 conference report. What will happen to the Institution if your request is denied and the Smithsonian is funded at the FY 1996 level?

Answer: As stated in response to question 1, 90% of our requested increase is for mandatory costs, most of which are related to pay. Our staff is smaller than it was two years ago, doing more with less, and, frankly, doing it better, even having been through the furloughs and snow days of this past winter that were bruising and, indeed, destructive. The Smithsonian Institution would be nothing without its staff--it is they who increase and diffuse knowledge and it is they who should be paid in a reasonable and timely manner for the work they do so well.

The very modest overall increase that has been requested is designed to stabilize the essential infrastructure of the Smithsonian, which is staff and the few resources used in their work, in order to attract partners--individuals, corporations, and other levels of government--to support a lively range of public programs without additional burdens on the Federal budget.

Should funding for the Smithsonian Institution be held at the FY 1996 level, it would seriously erode the Institution's core operations and its ability to meet its obligation to serve the public.

Fundraising

Question 56: In light of the reductions to the Institution's federal appropriation, have you been able to increase private contributions?

Answer: Although the total funds raised for the Institution has increased each year for the last few years, closer examination will show that the increases are the result of a few targeted and restricted major gifts. The Institution diligently seeks private funds wherever it can, especially with the tightening of the federal appropriation. We seek funds that are restricted and unrestricted, with the latter being more valuable in supplementing support for Smithsonian activities.

What has been observed in the last three years is that it is becoming more difficult to attract some of the gifts that were once much more easily secured. Gifts from corporations have decreased as corporate giving budgets have been drastically reduced. There is increased and intense competition among fund seekers for gifts from foundations brought on by the decrease in corporate giving. General unrestricted gifts from individuals have also been affected by decreased federal support. It is extremely difficult to persuade individual donors to support basic infrastructure and daily operations although they will support public programming, exhibitions, and education activities. The public perceives that it is the government's responsibility to support and maintain the facilities, collections, and basic operations of the Institution.

Smithsonian Home Page: www.si.edu

Question 57: What kind of success have you had with the Smithsonian "home page" on the internet? Can you give the Committee some specific examples of how schools have been able to utilize this information?

Answer: Since the release of the Institution-wide "home page" on May 8, 1995, usage has grown by a factor of three and is currently being sustained at about 150,000 "hits" per day or 35 million per year. Unlike most information sources on the Internet, the Smithsonian's usage did not peak shortly after release and then decline twenty to twenty-five per cent but has continued on an ever-upward path. Usage levels are far higher than is typical for other research and educational resources available on the Internet. Although it has proven difficult to directly translate "hits" into "visits" for all of us using this outreach medium at this juncture, we are confident that we are consistently reaching many thousands of people across the country, and around the world, that would not otherwise have access to our outstanding collections and research on a routine basis. Since the May, 1995 release, the amount of Smithsonian material available through the Internet has more than doubled. In addition, the Institution's home page received a number of awards throughout the year, and to a great extent sets the standard for Internet presentation of museum content.

The Smithsonian is particularly encouraged by the emphasis within the education community on establishing Internet connectivity in kindergarten through grade twelve schools and libraries. Although in their infancy, these efforts have resulted in an exponential growth of Internet capability in communities throughout the country, providing a delivery mechanism to place the vast resources of the Smithsonian in every school and library in the nation. Based on feedback to date, students are using the Smithsonian home page as a reference in the preparation of research projects and term papers. In addition, thousands of Smithsonian photographs are now downloaded each month, many for inclusion in school reports. Smithsonian teacher publications are also posted on the home page for users to download to their own computers. On average, 300 copies of teacher materials are now being downloaded each month. In addition to this, *Art to Zoo*, the Smithsonian's quarterly for teachers is electronically published in a form that allows the user to instantly reference related resources from around the world. This spring, for the first time, the application package for the summer high school intern program was published electronically on the Smithsonian's home page. More than a thousand copies were distributed electronically, which represents almost half the copies that the Institution traditionally would mail.

As well as the direct benefits cited, the Smithsonian's significant Internet presence has helped foster a number of other education and public outreach initiatives. These include a partnership with the Council of Great City Schools in conjunction with their Public Education Network and 21st Century Classroom projects, substantial participation in the privately funded "24 Hours in Cyberspace" program (one of the "One Day in the Life" series), and several corporate-sponsored electronic exhibits.

America's Smithsonian

Question 58: I know that your traveling exhibit, "America's Smithsonian," has been a huge success. Do you have any estimates on the number of people who are expected to visit this exhibit? How much does it cost to mount and display this exhibit? How much is the private sector contributing?

Answer: (1) We estimate that by the time we have completed our proposed tour of twelve cities, as many as 6 million people may have a chance to see and experience *America's Smithsonian*. Approximately 300,000 visitors attended *America's Smithsonian* in Los Angeles, where we were open for 31 days, a shorter run than anticipated in other cities. Since the turnout of people and the desire to see the exhibit was tremendous, we made changes to the exhibit for future sites that should allow more people to view it each day. Thus, we estimate that as many 15,000 people may soon comfortably view the show each day it is open.

(2) The cost of mounting and displaying the exhibit in Los Angeles was approximately $10M. This takes into account design and fabrication of exhibitry, as well as preparing objects for use in the exhibit over the two year period. Special conservation of some items, new mounts and special traveling cases are but a few of the preparation costs. Fabrication also included creating and customizing the walls forming the outline of the exhibit, and developing and building some 100 special cases and vitrines designed to display and protect the artifacts. Also included was the labor-intensive task of converting a convention center into a museum exhibition, transport that provided a climate controlled environment, and security for these treasures while in transit and on exhibition.

(3) The *America's Smithsonian* exhibit is being funded through private sector contributions. In support of our 150th Anniversary, an ambitious corporate partner program is ongoing in raising funds for this endeavor. To date we have four partners supporting the 150th activities through donations valued at $10 million each. They are: TWA, Discover, MCI, and Intel.

Corporate Partnership Program

Question 59: I know that MCI, the long distance telephone company, has begun issuing phone cards with pictures of Smithsonian artifacts on them. What does the Smithsonian get for allowing these images to be used? At some point, do you run the risk of commercializing the Smithsonian by allowing all of these companies to exploit your good name?

Answer: In conjunction with our 150th Anniversary, MCI has become a Corporate Partner with the Institution, for a participation fee of $10 million. The entire $10 million from MCI, as well as the fees from our other three Partners, has been invested in the national Smithsonian anniversary celebration, highlighted by a major traveling exhibition to twelve cities and a birthday party on the Mall in Washington.

One of the benefits to MCI is that they are permitted to use, with our approval, our images in their corporate marketing. The commemorative phone cards are a business contract under the Partnership Program.

We have embarked on this Program with careful planning and a watchful eye. The risk of "commercializing" the Institution is a concern for all of us, but our experience has proved that the corporations with whom we are partnering have almost as much interest in preserving the integrity of the Institution as we do. The high calibre and excellence of the work of the Smithsonian is the reason that the association is worth $10 million to them. If our diligence was comprised, our good name and reputation would no longer attract the same valuable Partners. In addition, major corporations have marketing and promotion budgets that far exceed the Institution's. The impressions of the Smithsonian that we are able to generate through the Corporate Partner Program help us extend the reach of the Institution throughout the country in ways we could not anticipate even one year ago.

Government Shut-down

Question 60: How did the government shut-downs impact museum visitation?

Answer: Visits recorded during the month of November and December 1995 were 1,366,574 below the same period in 1994 as a result of the government shut-downs. This represents a decline of 49%. The January 1996 visitor statistics reflect a decline 400,000 visits or 47% below 1995 levels as a result of the government shut-down and museum closings due to severe inclement weather. Revenue losses related to closed facilities, canceled programs, and disrupted concessions between November and January amounted to $2 million.

National Air and Space Museum Extension at Dulles

Question 61: I notice that you are requesting $5,000,000 for the Air and Space Museum Extension project at Dulles. How much has the State of Virginia contributed to this project? What do you expect the total cost of the project to be?

Answer: In the Memorandum of Understanding (MOU) between the Smithsonian and the Commonwealth of Virginia, dated April 22, 1996, Virginia commits to provide $6 million in appropriated funds for construction, specific access, site work, and infrastructure items valued at approximately $40 million, bonding authority up to $100 million, and a $3 million interest-free short-term loan. Virginia will also provide assistance to the Smithsonian with its fund-raising campaign, working with business groups and non-profits operating in the Commonwealth. The total project cost, including master planning, design, construction, relocation of the collections, and initial start-up costs, is estimated at approximately $200 million.

National Museum of the American Indian Cultural Resources Center

Question 62: The FY 1996 conference report appropriates $15,000,000 for the National Museum of the American Indian Cultural Resources Center at Suitland, Maryland. The Statement of the Managers that accompanies the Conference Report states that this will be the final federal appropriation for the Suitland structure. Can you complete this important facility with no additional federal funding? Is the damage to the Indian artifacts continuing?

Answer: We do not plan to request additional Federal funds for completion of the Suitland structure. The damage to the Indian artifacts is continuing in NMAI's facility in the Bronx where densely compacted storage of the collections and the deterioration of the building pose constant risk and limit access. We plan to complete construction of and transfer of the collections to the Cultural Resources Center at the earliest possible time.

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